RISC user

The magazine for users of Acorn RISC computers

JUNE 1993
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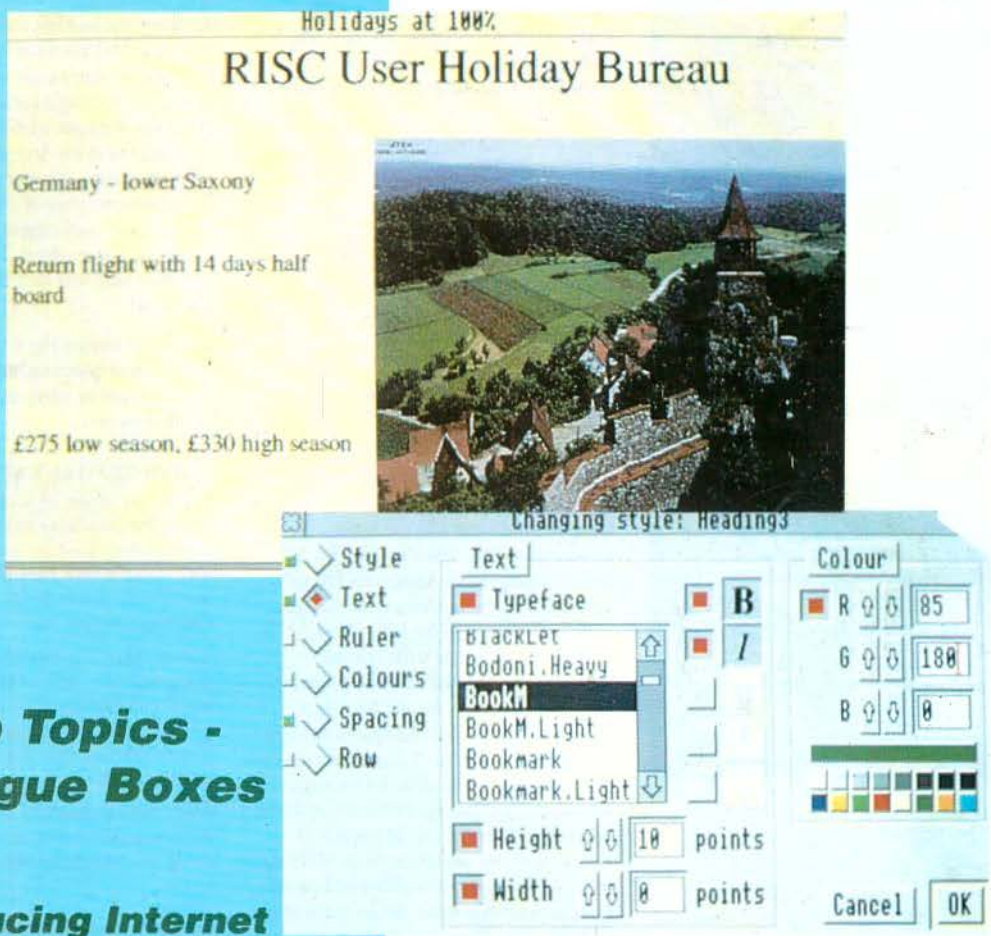
The Advance Database



Wimp Topics - Dialogue Boxes

Introducing Internet

Serenade your Arc

The Prime of Educational Word Processing

JUNE 1993
VOLUME 6 ISSUE 7

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THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

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As on some other occasions, it is a letter from a reader (see Write-Back) which has prompted my thoughts for this editorial. A year ago Acorn launched its long-expected portable computer, the A4. This was the machine many users had been waiting for: all the power and capability of an A5000 packaged up in a portable, A4 sized box. It looked highly seductive, and many Archimedes users fell under its spell. But the A4 has always seemed in short supply, and many purchasers have had to wait some time to receive theirs.

But what of the A4 now? After an initial flurry of editorial coverage, most Archimedes magazines (including ourselves) seem to have forgotten its existence, and no less seems to be true of Acorn itself. Of course, given that the A4 is a full RISC OS machine, there is no reason why it should deserve special attention, but users of portables do have different constraints when it come to expansion.

In fact, it seems to me that two issues are at stake here. When Acorn announced the A4 it chose to compare it with the Apple Powerbook 170. There is nothing wrong in that. However, when Apple launched its portable, it chose to release three different models in that range (the 100, 140 and 170), and more significantly it has released improved and updated Powerbook models since (the 145, 160, 180 and the colour version 165c). Apple is clearly serious about its portables, but what of Acorn? We have no indication of the role of the A4 (or similar) in Acorn's product line-up for the future. Is the A4 doomed to wither by the wayside as Acorn takes new directions, or are we likely to see further updated models based on the same package? Certainly the A4 seems to be in the shadows these days as far as Acorn is concerned. It would be good to know what Acorn's longer term commitment to this type of machine really is.

There is a second issue highlighted by the A4, but this time one which applies more or less equally across the whole of the Archimedes range. That is the question of expansion capability. Most add-ons to the Archimedes have relied on the use of a podule (interface card) specifically designed for the Archimedes. Yet every Archimedes has one if not two interfaces fitted as standard, namely the serial port and the parallel port (mostly used for printing).

Why go to the expense and trouble of designing and building custom interfaces when standard interfaces such as these already exist. Apparently they are widely used for connecting a variety of devices in the PC world. Why can we not have the same opportunities in the Archimedes world, giving us access to the normally cheaper but more extensive range of choices available to PC users, and providing simple expansion capabilities for machines like the A4, which otherwise have very little expansion space to start with?

If Acorn or anyone else is prepared to address these questions, then I am sure many readers would be interested to know what the answers are.

M.W.

A TRIBUTE TO RICKY DELARRE

Due to the death of Ricky Delarre, Clares Micro Supplies have delayed the release of Topographer. The Clares team found working with Ricky a very rewarding experience. He was a very professional programmer who took a pride in his work.

Topographer was literally hours away from being finished. It is a reflection of Ricky's popularity that his colleague, Ian Robinson, has immediately stepped in to complete Topographer so that it can be released as a fitting tribute to Ricky.

Ricky will be missed by all at Clares, and his death is a great loss to everyone in the Acorn world as well as to his family and wife Jayne.

Dave Clare

RISC User has also expressed its sadness at the news of Ricky's sudden death to his wife. Ricky has been associated with the magazine since his involvement in the game Karma. He has written a number of reviews and other features for RISC User, including the review of the Integrex Colourjet Series 2 printer published in the last issue.

We very much endorse the sentiments expressed by Dave Clare in his concluding paragraph.

Mike Williams & Lee Calcraft

CONTENTS

FEATURES

Wimp Topics: Dialogue Boxes	9
Working with Images (Part 2):Image Enhancement	16
Introducing Internet	20
3D Icons for All	22
Flash Pocketware: Software for the Pocket Book	33
Getting the Best from Ovation	40
Managing Econet - A School Approach	48
The PC Emulator Survival Guide (Part 4)	51
Into the Arc: RISC OS Filings	58
C Notebook: Hints and Queries	61

UTILITIES AND APPLICATIONS

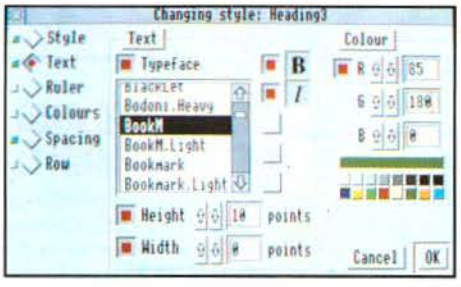
SmartSave	25
Customising the RISC OS 3 Desktop (Part 2): New-look windows and tool icons	28
SetTools: 3D window styles	60
The RISC User Guitar Player	65

REVIEWS

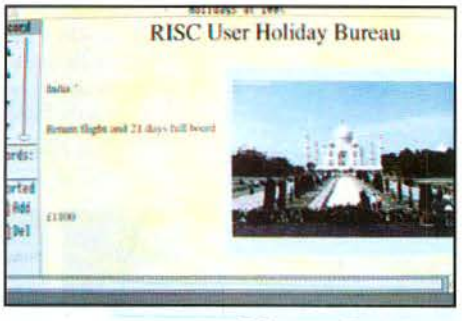
The Advance Database	12
Book Reviews: Graphics on the ARM Machines	30
Dabhand Guide to Impression	30
Serenade your Arc: Music software for MIDI	35
The Prime of Educational Word Processing	43
Organise Yourself: Stallion Software's Almanac	46

REGULARS

News	4
RISC User Disc Contents	38
Hints and Tips	54
Write-Back	62
Technical Queries	66
RISC User Subscriptions	70
Classified Ads	71
Advertisers' Index	71

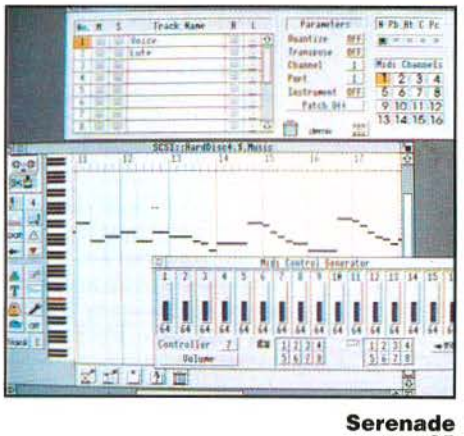


Wimp Topics
page 9



Advance Database
page 12

Working with Images
page 16



Serenade
page 35

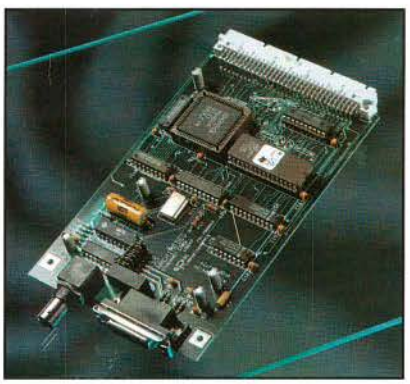
News ...

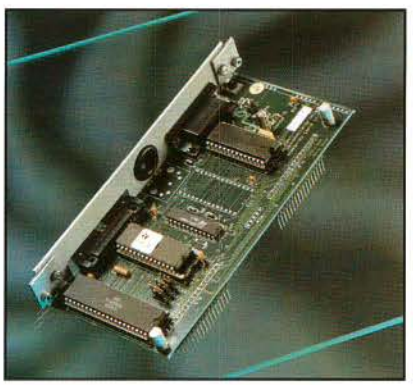
ETHERNET AND ECONET FROM RISC DEVELOPMENTS

RISC Developments, publishers of RISC User, has announced a new range of networking products. The most significant is an Ethernet card, in sizes to fit all Acorn machines except the A4, at prices from £139 ex. VAT. The Ethernet card will run in conjunction with the Acorn Universal Network (AUN) software using thin-wire Ethernet cabling for fast networking but still with Econet compatibility.

RISC Developments has also announced an expansion card for the A3000 series of machines which provides a User Port, Analogue Converter and an optional Econet interface all on the same card. The board also features a boot ROM containing all the code needed to run within the AUN environment. The card will cost £44.95 without the Econet interface, £79.95 with (ex. VAT).

For further information contact RISC Developments, 117 Hatfield Road, St Albans, Herts AL1 4JS, tel. 0727 840303, fax 0727 860263.





RISC Developments' Etehrnet card (left) and A3000 expansiom card (right)

LONGMAN LOGOTRON SPEAKS

Longman Logotron has announced a talking version of PenDown Plus, its word processor for the Education market. To be called Talking PenDown, the new package incorporates the complete PenDown word processor, together with a natty speech synthesising facility based on software developed by Superior Software.

The package will run on any Archimedes system with 1Mb of RAM, requiring no additional hardware. In addition to its tried and trusted word processing functions, it can speak letters, words, sentences, paragraphs, selections or whole documents. Longman Logotron has been running trials of the software for some time, and claims that the speech facility has proved valuable, particularly for dyslexic children and those with below-average reading skills. It will be interesting to see if Talking PenDown provides support for blind and partially-sighted people.

The price is £64.00 ex. VAT for the complete Talking PenDown package, with a £32.00 ex. VAT preferential upgrade for existing users of PenDown. Publication date is expected to be towards the end of May. For further information, contact Longman Logotron at 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS, tel. 0223 425558, fax 0223 425349.

ACORN USER SPRING SHOW

The Harrogate show was busier than expected, even the rail strike on Friday failing to keep people away. The Harrogate International Centre is a small venue, with a friendly, lowish-key atmosphere, relaxed compared to the previous London venues.

Acorn and Computer Concepts, inhabiting large stands near the entrance, had a big presence. Clares, with a number of new releases, were reported to be doing brisk business during all three days. Knowledge Organiser 2 and Serenade looked particularly interesting. Colton demonstrated a pre-release version of Resultz, their new spreadsheet, notable for allowing variable column widths within a single column. The final release date is likely to be early in June. Irontech was showing off StartWrite, its talking word processor, which has the new drag-and-drop feature, whereby selected text can be dragged about without going through a clipboard.

Several new companies were touting educational wares. The ARM club has announced the formation of their Education Group, offering courses at budget prices on RISC OS packages, application areas such as music and games, and general courses such as teaching for teachers.

Archimedes magazines were selling like hot cakes, a reflection of the health and vigour of the Acorn industry.

The general view seems to be that holding a show in the North has been very worthwhile, attracting many people who would not have got to shows in the South (in addition to a good crop of southerners). We will have to wait and see whether the organisers will consider making it regular event.

DIGITAL SERVICES NETGAIN FOR ETHERNET

Netgain, already released for Econet, is a package designed to increase the performance of networks by eliminating bottlenecks using intelligent cacheing. The new version should do for Ethernet what it has already done for Econet, and means that Netgain is now compatible with AUN Level 4 networks. Digital suggest that speed improvements of over 250% are not uncommon on typical systems, with dramatic improvements (300% and more) in the load times of some applications. Netgain is installed on the server, and uses no workstation memory. Netgain for Ethernet costs £200 ex. VAT for the server pack and the first 10 stations. Additional 10 station packs are £100 ex. VAT.

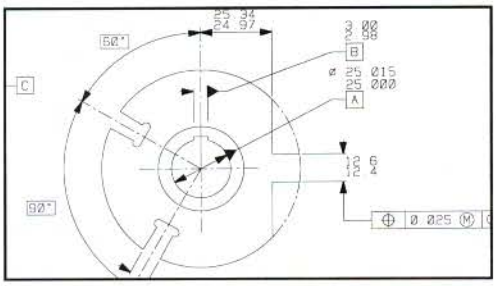
Digital Services Ltd. can be contacted at 9 Wayte Street, Cosham, Portsmouth, Hampshire PO6 3BS, tel. 0705 210600/324934, fax 0705 210709.

MINERVA CAD UPDATE

Minerva speaks of an "overwhelming response" to their new product, ProCAD, at the official CADCAM show. Users of AUTOCAD, the PC's industry standard CAD package, were reportedly amazed at ProCAD's speed and power. Redraw speed is said to be virtually instantaneous on all but the most complex of drawings, and complete regenerations of complex drawings are never necessary. ProCAD supports comprehensive import and export of AutoCAD DXF files, and is similar in functionality to AutoCAD. English and Dutch flavours are available, with more to come.

ProCAD is the professional version of CADet, reviewed in RISC User 6:3. The current version of CADet provides a good subset of ProCAD's functionality, with the same plotting performance.

Prices are £495 ex. VAT for ProCAD, £149 ex. VAT for CADet. For further information contact Minerva at Minerva House, Baring Crescent, Exeter EX1 1TL, tel. 0392 437756.



CLARES KNOWLEDGE ORGANISER 2

Clares has produced what looks to be a powerful addition to the armoury of researchers and writers. Knowledge Organiser is a RISC OS-compliant textual database which can store variable-sized items of text, from sentences to paragraphs and whole documents. These items can be cross-referenced using a series of keywords defined by the user. Groups of items can then be retrieved by matching combinations of keywords and document sources. Keywords can be hierarchical, which saves time and errors: for example, a search for the keyword "Bird" can be made to pick up text items with keywords "Robin", "Crow", "Emu" etc. With care, powerful networks of keywords can be built.

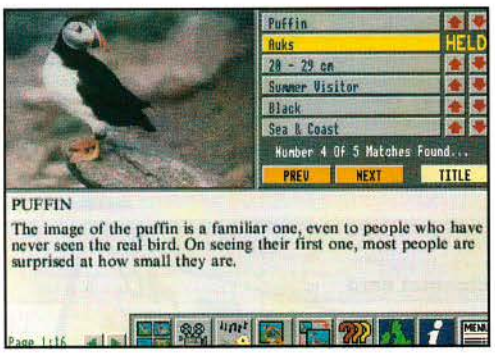
Contact Clares at 98 Middlewich Road, Northwich, Cheshire CW9 7DA, tel. 0606 48511.

BRITISH BIRDS CD-ROM

The Royal Society for the Protection of Birds, the British Library and Interactive Learning Productions (ILP) of Newcastle-upon-Tyne have collaborated to produce a CD-ROM of the complete British bird species. The Archimedes version features sound tracks from the British Library sound archives, Acorn Replay video (which the PC version lacks), some spectacular still photography and breeding and distribution charts. It should appeal strongly to education, as well as conservationists and those interested in ornithology.

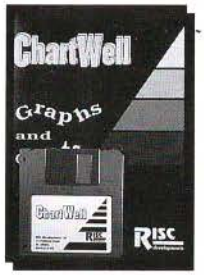
ILP have several other educational CD projects under way, in conjunction with Yorkshire Televion and Academy Television, covering Science, Environment, Language and History.

For the British Birds CD-ROM, contact Jane Carr at the British Library, 41 Russel Square, London WC1B 3DG; ILP are at Third Floor, North Street Court, North Street East, Newcastle-upon-Tyne NE1 8HD, tel. 091 261 1255, fax 091 230 0944.


Puffin
Auks
HELD
20 - 29 cm
Summer Visitor
Black
Sea & Coast
Number 4 Of 5 Matches Found...
PREV
NEXT
TITLE
PUFFIN
The image of the puffin is a familiar one, even to people who have never seen the real bird. On seeing their first one, most people are surprised at how small they are.
MENU

ChartWell

£29.95
inc.Vat
+ £2 p&p

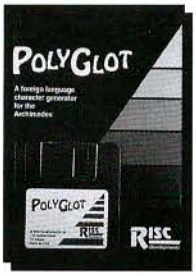


ChartWell is a comprehensive but easy-to-use chart and graph package. From data dragged to it, ChartWell will produce a variety of both horizontal and vertical bar charts, pie charts, line graphs, scatter graphs and polar plots. ChartWell interprets data with the minimum of intervention from the user, but also allows detailed control over all features as and when required. Output is in standard Draw file format. Flexible data selection allows up to six data sets to be chosen from as many as 32 different sets, for display in any order. All graph characteristics can be saved to reproduce the same style of graph with ease as required.

"ChartWell scores on simpler controls over the basic graph types. It also has enough effects to present material prettily, at a price that makes it attractive to the home or school user."
BBC Acorn User

Polyglot

£19.95
inc.Vat
+ £2 p&p



PolyGlot is a highly flexible package which can be readily customised to suit the needs of the user. Primarily of interest to users of foreign languages, PolyGlot provides quick and convenient access to to all the characters not normally found on the keyboard from simple user defined windows. PolyGlot is ideal for use with word processing and DTP packages, and is useful for other groups of symbols (e.g. mathematical). Full printer support is included.

"...a vital add-on for a text editor, word processor or DTP program if foreign alphabets are required."
Archimedes World

DeskEdit 2

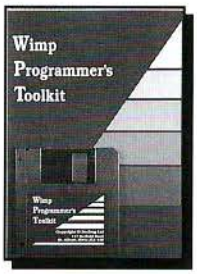
£31.95
inc.Vat
+ £2p&p

DeskEdit 2 is probably the most comprehensive editor available for the Archimedes range with extensive features for editing ASCII text, Basic, C or other programming languages. There are numerous options, with many keyboard shortcuts for the more experienced user. By automatically handling text and Basic programs, DeskEdit 2 provides you with all the text editing facilities you will need in a single package.

"DeskEdit 2 has far more in the way of text editing facilities and a remarkably comprehensive list of features to support Basic and C programmers - indeed it is difficult to think of anything that could be added."
Archimedes World

Wimp Programmer's Toolkit

£19.95
inc.Vat
+ £2 p&p



This is a collection of 12 multi-tasking applications to assist in the development and debugging of Wimp programs, particularly in Basic. Window design (using FormEd) and Menu design are both catered for, with other applications to monitor the Wimp and provide all the debugging information you need. The Wimp programmer's Toolkit comes complete with three different Wimp shell programs - just plug in your own code and go.

An ideal companion to the book Wimp Programming for All.

File Handling for All by David Spencer and Mike Williams

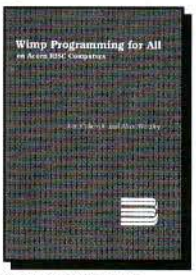
£9.95
Disc
£4.95
+ £2 p&p

This book covers in some detail all the principles and techniques required to program file handling applications from simple card index files, to multi-file databases with file and record pointers and indexing. There are copious programming examples, all written in Basic, and this book provides an ideal introduction and development of the subject for programmers concerned with file handling applications. The accompanying disc contains all the example programs from the book plus a complete working database system.

"This is a useful, well written book, benefiting from the obvious experience of its authors, both in the field of programming and the publishing world."
Micro User

Wimp Programming for All by Lee Calcraft and Alan Wrigley

£12.95
Disc
£4.95
+ £2 p&p



This book provides a comprehensive introduction to the many details involved in writing Wimp programs on the Archimedes, dealing with the Wimp poll loop, windows, icons, menus, file transfers, outline fonts, printing and more. All the examples are given in BBC Basic, and a complete set of demo programs and a Wimp procedure library are included on the accompanying disc.

"This book can be used in place of Acorn's Programmer's Reference Manual for the majority of users ... I can highly recommend this book for programmers familiar with other programming environments wanting to learn how to write programs to multitask within RISC OS." **Acorn Computing**

RISC Developments ltd. 117 Hatfield Rd. St.Albans Herts Al1 4JS. Tel 0727 840303 Fax 0727 860263

PSION OPL EMULATOR UNDER MS-DOS

An OPL emulator, written by Psion, is available in the public domain. The emulator runs on the PC emulator, a PC card or a full-blown PC. Being public domain, the system is cheaper than Acorn's offering, benefits from faster translation times for OPL programs, and the programmer has the benefit of a real keyboard during development. Finished programs can be downloaded to the Pocket Book. However, note that the software is not supported by Psion.

The emulator software is available from the Arcade BBS, among others, on 081 654 2212.

ARTSCHOOL

Micro Studio Software has produced an easy-to-use painting program aimed at primary level education and those new to computing. The program can be customised by a teacher to hide more complex tools until pupils are ready for them, and a built-in help facility is available at all times. An undo facility encourages learners to experiment without fear. Facilities offered include Pencil and Paint, Shapes, Fill, Patterns and clip art. The package costs £29.95 inclusive.

Contact Micro Studio Software, 22

LINDIS SUCCESS CREATES NEW COMPANY

Lindis International Ltd. has just announced that Lingenuity, its product division, is to be an independently owned and managed business as of April 1st. Jonathon Thompson, managing director of Lindis International, stressed that the two companies will continue to work closely together, benefitting from each other's resources. Jack Lillingston will be leaving Lindis International to manage Lingenuity.

Lindis International can be contacted at Wood Farm, Linstead Magna, Halesworth, Suffolk IP19 0DU, tel. 098 685 476, fax 098 685 460; Lingenuity (at the same address) is on 098 685 477.

EDUCATIONAL SCHEMING

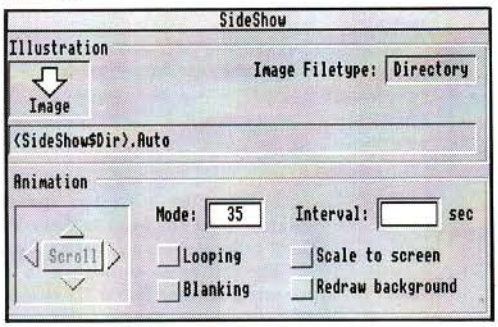
Lambda Publications Scheme is an object-oriented dialect of LISP, the artificial intelligence language, which Lambda Publications says is catching on in educational circles. The John Hopkins University recently ran a trial of Scheme and was so pleased with the results that it has decided to use Scheme to teach all its students how to program. The Scheme manual and teachers materials came in for lavish praise.

Scheme's great strength as a language is that it has almost no syntax. Students can learn the language quickly and thoroughly, and be writing programs almost from the start. Scheme programs reflect underlying concepts much more clearly than other teaching languages such as Pascal, in which syntax can hide or distort algorithms. Versions are available for a variety of operating systems including Archimedes and MSDOS.

More information can be obtained from Lambda Publications, 194 Cheney Manor Road, The Green, Swindon, Wilts SN2 2NZ.

ROLL UP FOR SIDESHOW

Computer Concepts, the parent company of Wild Vision, have written a titler application for Wild Vision's Chroma-Genlock package. SideShow is based around the Draw file format, and acts as a medium for overlaying Draw objects, sprites and/or text onto video.



SideShow will be supplied free of charge with the Chroma-Genlock package, and enables the casual user to produce a variety of effects without buying a separate titling package. As users advance, they can move on to more sophisticated software such as Clares Titler.

SideShow is suitable for use with all Archimedes computers with 1Mb RAM or more. For a limited period, registered owners of Chroma-Genlock can recieve SideShow free of charge. The price of the Chroma-Genlock package remains at £215 inc. VAT.

For more information contact Cathy Brown, Wild Vision Ltd., 15 Witney Way, Boldon Business Park, Boldon Colliery, Tyne and Wear NE35 9PE, tel. 091 519 1455, fax 091 519 1929.

MULTIMEDIA SHOW

The Multimedia in Action for Education is an event in its second year dedicated to taking multimedia out of the exhibition hall and into the classroom, where teachers and educationalists can see educational multimedia technology in the environment for which it is intended. The event is to take place at a "progressive secondary school", (the Alsop High School, Liverpool) on the 8th and 9th of July. Exhibitors will include companies actively marketing multimedia products and services to Education, such as hardware manufacturers, software developers, advisory bodies and consultants. As well as demonstrating new technology and resources, there will be an extensive range of workshops and seminars given by key figures in the industry.

For more information, contact Rubicon Events Ltd., Rayner House, 23 Higher Hillgate, Stockport SK1 3ER, tel. 061 429 9448, fax 061 429 9568

SCHOOL CHILDREN PROVE THAT NEW BYPASS WILL DAMAGE THE LOCAL ENVIRONMENT

EXCLUSIVE BY MATTHEW DAVIES

USING an innovative new program on their classroom computer children from St. Chad's School have shown town planners that a proposed new bypass would have a detrimental effect on their local environment.

The children surveyed the local area and fed details into their Topographer program, which allows them to look at the relevant area in 3D. They then added the new road along its proposed route and it became obvious that the road would not only affect an area renowned for its badger population but would also distract children in t classroom as they would able to see traffic movi along the new road.

The children even went far as to propose a new ro for the road to the to planners. The proposed ro would have a negligi impact on the area but s provide the much needed re to existing roads.

A SERIES of sweeping proposals which would abolish free parking in district shopping centres, change some bin collections, increase lettings charges and scale down mileage claims by some council officers, have been announced by Labour.

In the first indication of their intentions si seizing power jointly with the Conservati party has produced a h 1,000 ' servi

● REDUCING mainten

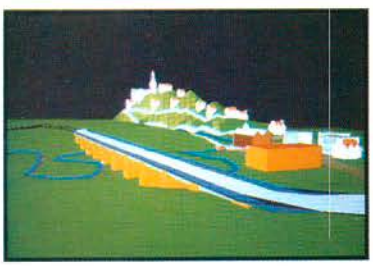
Other econ departmental b cutting scho fees.

Th

Topographer is a major application for the Geography curriculum which allows children (and teachers) to have lots of fun whilst learning all about maps, contour lines, valleys, rivers etc. In fact *Topographer* covers virtually all items found on a map.

The real break through with *Topographer* is its 3D section which allows you to convert a 2D map into a 3D model on screen. Imagine turning a set of flat contour lines on a 2D map into a 3D model which clearly shows the hill — no more cardboard cut out models or papier mache! You define where you look from, and what you look at.

Topographer also covers aspects of the IT and maths curriculum with its modelling capabilities. Just stop for a minute and think of the projects that you could do with *Topographer*. You could make a map of the local area with churches, pubs, woods etc. and then view it from various places. If there is a bypass proposed you could add it in to the existing landscape and see where it is visible from and what impact it is likely to have on the community. I'm sure you can think of a hundred and one topics.



◆ Fully RISC OS 2 & 3 Compliant and 1 megabyte friendly ◆ Suitable for all ages from 6 onwards ◆ Easy and quick entry of all symbols (over 100) ◆ Wooded areas which translate into impressive 3D landscapes ◆ Definable map size and scale which can be linked to the national grid references ◆ Powerful 3D mode giving a true representation of the landscape ◆ Stunning 3D models which can be saved as a sprite file for use with other applications.

£79.95 inc. VAT

All specifications subject to alteration without notice

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CLARES

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Wimp Topics - Dialogue Boxes

Alan Wrigley starts a new series of articles on aspects of Wimp programming.

Wimp Topics is aimed at those readers interested in Wimp programs and programming, and each article in the series will look at aspects of a particular topic. This month's subject is dialogue boxes.

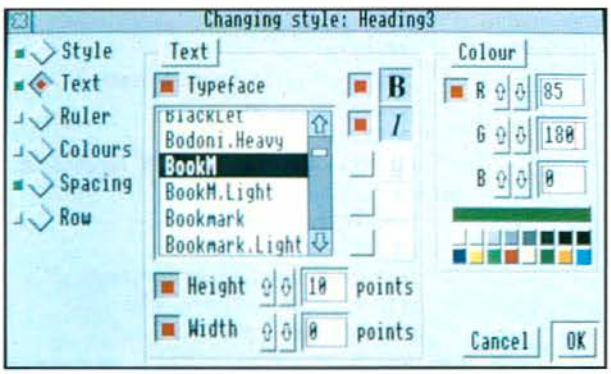
Dialogue boxes are one of the primary means of interaction between a RISC OS program and the user. Dialogue boxes can be works of art, but they must also convey precisely the right information in the right way. Acorn's guidelines are quite strict on the subject, but even beyond the guidelines there are good and bad ways of doing things. It's worth putting some effort into the design and implementation of your dialogue boxes, since they will have a marked impact on the impression your program creates with the user.

DESIGN

Dialogue boxes should be no larger than they need to be. The screen gets cluttered enough as it is if you have several applications running, so a huge dialogue box with vast empty spaces doesn't promote efficiency on the Desktop. Once you have decided what icons are needed, lay them out neatly with the minimum of space between them (though not at the expense of clarity), group them together sensibly wherever you can, and resize the window as small as possible when you have finished. The illustration shows a typical dialogue box which looks stylish, but is also easy to understand and use. If your dialogue box contains a large amount of data, consider splitting it up into two or more groups and creating separate dialogue boxes which each open up from their own menu entry. Most users will prefer this to wading through a maze of icons to find the one they need to read or select.

Use the correct icons for the job in hand. If you are offering the user a choice between two or more options where one, and only one, option may be selected at any time, then you must use radio icons, set the button type to *radio*, and give the whole group the same (non-zero) ESG number. Incidentally, there is a small problem with radio icons - if you click on the currently selected icon with Adjust, it will deselect, leaving the group in an ambiguous state. There is a simple solution to this, which involves detecting button clicks with Adjust over one of the icons and using "Wimp_SetIconState" to set the selected bit for that icon. Listing 3 includes an example, and is described in more detail later in the article.

For single independent options which are either on or off, you should use the *opton* and *optoff* sprite icons. These should also have the *radio* button type, but with an ESG of zero to ensure they do not interact with each other.



A well designed dialogue box from Wordz

There is nothing to stop you redesigning the standard radio and option sprites for your own use (as in the example shown here), but you should not load the sprites into the Wimp sprite pool; you must keep them instead in a separate sprite file which you load into a user area, rather than including them in the !Sprites file (we will be covering this topic in a future article in this series). This is because in the latter case they will then be used as the default sprites, and many users will find it annoying to have your designs appearing in other applications afterwards.

PROCESSING SELECTIONS

Once the dialogue box is displayed on the screen, there are numerous things you can do to make life easy and intuitive for the user. For example, you should arrange all writable icons in a logical sequence, and process keypresses in such a way that pressing the up or down cursor key moves the caret to the previous or next writable icon

respectively; and that pressing Return moves to the next icon unless it is already in the last icon in the window, in which case the keypress should duplicate the default action icon (normally OK). If you have RISC OS 3, you can get the Wimp to do most of this for you automatically by using the K validation command (see *Technical Queries* in RISC User 6:6). With RISC OS 2 you must write the code yourself, but this is quite simple to do. For example, a procedure to process the pressing of Return or the cursor keys in a window with a group of writable icons with handles 3 to 9 inclusive would look something like Listing 1.

Listing 1

```
1000 DEF PROCkeypress(key%,icon%)
1010 CASE key% OF
1020 WHEN 13,&18E:IF key%=13 AND icon
%=9 THEN
1030 PROCaction
1040 ELSE
1050 icon%+=1:IF icon%>9 icon%=3
1060 PROCsetcaret
1070 ENDIF
1080 WHEN &18F:icon%-=1:IF icon%<3 ic
on%=9
1090 PROCsetcaret
1100 OTHERWISE
1110 SYS "Wimp_ProcessKey",key%
1120 ENDCASE
1130 ENDPROC
```

The procedure would be called in response to poll reason code 8, as follows:

```
WHEN 8:PROCkeypress(block%!24,block%!4)
```

The parameters are the key pressed and the icon handle respectively. *PROCaction* will be the same procedure that is called when the default action icon is selected, while *PROCsetcaret* sets the caret in the next icon, and will look something like Listing 2.

Listing 2

```
2000 DEF PROCsetcaret
2010 SYS "Wimp_GetIconState",,block%
2020 SYS "Wimp_SetCaretPosition",whand
le%,icon%,,,-1,LEN$(bk%!28)
2030 ENDPROC
```

Note that for the call to "Wimp_GetIconState", the window and icon handles will already be in the block since they were returned by "Wimp_Poll".

CHANGING VALUES

It is often necessary to provide a means of incrementing or decrementing a value, and the standard way of doing this is to use a pair of arrow icons. The sprites for these are in the Wimp pool as *up*, *down*, *left* and *right*. You could arrange to highlight these as the pointer moves over them (*menu* button type), but it is usually better to set the button type to *auto-repeat* so that holding down the mouse button will cycle quickly through the range.

While on this subject, it is a RISC OS convention that Adjust should operate in the opposite way to Select - if Select over a particular icon increments the value by 1, Adjust over the same icon should decrement it by 1, and so on. Occasionally programmers don't bother to implement this, but it should be done since the user will expect it. It is not difficult, and usually needs very little extra code. Consider a dialogue box which has a text icon displaying a value *width%*, which can be altered within the range 0-255 by clicking on one of a pair of arrow icons. For good measure, we will include a group of three radio icons to demonstrate how to avoid an ambiguous selection when using Adjust, as described earlier. If the radio icons are numbered 0-2, the text display icon is 3, and the arrow icons 4 (up) and 5 (down), the entire procedure which handles button clicks over the window would probably look very much like Listing 3.

Listing 3

```
3000 DEF PROCclick(button%,icon%)
3010 CASE icon% OF
3020 WHEN 0,1,2:IF button%=1 THEN
3030 !block%=whandle%:block%!4=icon%
3040 block%!8=1<<21:block%!12=1<<21
3050 SYS "Wimp_SetIconState",,block%
3060 ENDIF
3070 PROCradioclick
3080 WHEN 4,5:CASE TRUE OF
3090 WHEN (icon%=4 AND button%=4) OR
(icon%=5 AND button%=1):width%+=1
3100 WHEN (icon%=5 AND button%=4) OR
(icon%=4 AND button%=1):width%-=1
3110 ENDCASE
3120 IF width%<0 width%=0 ELSE IF wid
th%>255 width%=255
3130 !block%=whandle%:block%!4=3
3140 SYS "Wimp_GetIconState",,block%
3150 $(block%!28)=STR$width%
3160 block%!8=0:block%!12=0
3170 SYS "Wimp_SetIconState",,block%
3180 ENDCASE
3190 ENDPROC
```

On entry to the procedure, *icon%* holds the icon handle and *button%* holds the state of the buttons. The procedure would be called from the poll loop in response to reason code 6:

```
WHEN 6:PROCclick(block%!8,block%!16)
```

Lines 3020-3060 handle a click with Adjust over one of the radio icons. If the button state is 1 (Adjust pressed), the *selected* bit (bit 21) for that icon is set, thus preventing the action of Adjust from deselecting it. *PROCradioclick* (called in line 3070) would do any processing necessary as a result of selecting one of the radio icons.

Clicks over the arrow icons are processed in lines 3090-3100. As you can see, it is really very simple to include reverse action for the Adjust button as described above. The rest of the procedure (lines 3120-3170) alters the value of *width%* and updates the icon which displays it.

DIALOGUE BOXES AS MENUS

It is not commonly realised that you can put a dialogue box (or any window for that matter) on the screen by using "Wimp_CreateMenu" rather than "Wimp_OpenWindow". If you think about it, this is analogous to opening a dialogue box as a submenu; as far as the Wimp is concerned, a menu is just another window anyway. This is handy if, for example, you want to open a Save box from somewhere other than a submenu entry - perhaps by choosing a Save option, or as an automatic operation after dragging in a file for processing. If you open the Save box using "Wimp_OpenWindow", it will stay on the screen until you close it, whereas it is more normal for dialogue boxes to disappear when the mouse is clicked elsewhere on the Desktop. Opening the dialogue box as a menu rather than a conventional window achieves the desired result. All you need is the window handle in R1, and the co-ordinates in R2 and R3 just as with a normal menu. A typical call would be:

```
SYS "Wimp_CreateMenu",,save%,x%,y%
```

where *x%* and *y%* hold the required screen co-ordinates.

SUBMENU WARNINGS

Finally this month, are you making full use of the Wimp submenu warning message? If you set the submenu warning bit for any menu item which has a submenu (see the PRM for full details), then every time the pointer is moved over the submenu arrow, a message will be sent to the task instead of the submenu being opened. This allows you to update data in a dialogue box, for example, before opening it yourself.

There are many useful applications for this feature, but one in particular is where you have several save options on a menu, each of which saves a file as a different filetype (Text, CSV etc.). I have seen programs where a number of separate dialogue box templates have been created, each having a different sprite for the file icon. This is completely unnecessary - all you need is one dialogue box (with an indirected sprite icon to represent the file) together with the submenu warning bit set for any menu item which leads to a Save box. When you receive the warning, you just alter the sprite name in the indirected buffer before opening the Save box.

Listing 4 is a typical Wimp message handling procedure which demonstrates the principle described above for two save options: Text (type &FFF) and CSV (type &DFE). The submenu warning is action code &400C0. The co-ordinates are returned in block+24 and block+28, and the menu item being accessed is at block+32 onwards (top level at block+32, first sub-level at block+36 etc.). In the example, we are assuming that the icon handle is 0, and that the menu option will be 0 or 1 in the first sub-level.

Listing 4

```
    4000 DEF PROCreceive(action%)
    4010 CASE action% OF
    4020 WHEN 0:quit%=TRUE
    4030 REM add other action codes here
    4040 WHEN &400C0:x%=block%!24:y%=bloc
k%!28
    4050 CASE block%!36 OF
    4060 WHEN 0:spr$="file_fff"
    4070 WHEN 1:spr$="file_dfe"
    4080 ENDCASE
    4090 block%=save%:block%!4=0
    4100 SYS "Wimp_GetIconState",,block%
    4110 $(block%!28)=file$
    4120 block%!8=0:block%!12=0
    4130 SYS "Wimp_SetIconState",,block%
    4140 SYS "Wimp_CreateSubMenu",,save%,
x%,y%
    4150 ENDCASE
    4160 ENDPROC
```

Next month we will explore another aspect of Wimp programming.

The Advance Database

Reviewed by Mike Williams

Last month, in RISC User 6:6, I looked at Acorn's new Advance integrated software suite. As readers may have noted, I was particularly taken by the database (*AdvanceDB*), so we will now look at this in more detail. To test it out I have used AdvanceDB to set up a database which I have been wanting to do for some time. This is to catalogue a growing collection of old travel books. In my experience there is nothing like doing a real job to test out the effectiveness of a piece of software.

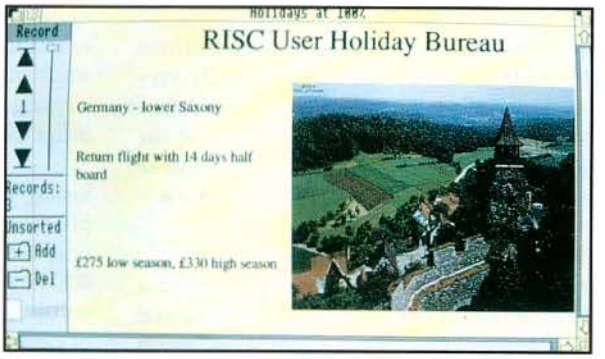


Figure 1. The Advance database

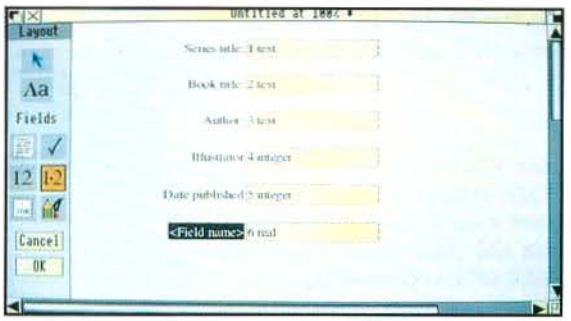


Figure 2. Creating the fields for the record layout

CREATING A DATABASE

The first task is to create the format of my database. I have decided initially on the following fields:

Series title	*text*	Illustrator	*text*
Book title	*text*	Year published	*integer*
Author	*text*	Price paid	*real*

In AdvanceDB, fields are created by selecting the required field type from the buttons to the left of the main window, and then moving over the design area. A rectangle automatically appears to represent a field, and pressing Select confirms its position. An attached box then appears for the description or name of the field to be entered (see figure 2).

Other field types include *date*, *boolean* (for yes/no type responses), and *picture* (for sprite or Draw files), but there are no *Calculation* fields. Field types and descriptions can be altered later if required. Several fields can be edited together, by selecting with Adjust rather than Select, which is quite useful. The size of a field is determined in relation to an optional grid - but you cannot determine field size in relation to the number of characters or digits, since all text is proportionally spaced. Fields can be resized and repositioned as required.

Data can be left justified, right justified or centred within a designated field, but there is no provision for specifying the number of decimal places for real numbers, in my view an important if small deficiency which may constrain the use of AdvanceDB for many otherwise suitable applications. The record can be further customised by adding text and pictures as required, plus choice of foreground and background colours, and the use of borders.

ENTERING DATA

Having created my record layout, I then started to add some real data. First you need to change from the *Layout Editor* to the so-called *One Record* window - this is where data is entered and displayed - and I entered my first record. At this point I found I had accidentally mis-typed a text field as integer - highlighted when I tried to enter text into the field. I had to delete this text before AdvanceDB would let me edit the field type in the Layout Editor, but then all was OK (see figure 3).

I decided that I needed an extra field for my database. Would AdvanceDB allow me to do

this? Back to the Layout Editor to create a new text field. I positioned this where I wanted it, and by editing the field numbers I was able to change the order in which the fields would be selected for data entry. Indeed this worked better than I had hoped, and I then entered more records with further additions to the number of fields. So far so good. One good point to note is that adding to the number of fields seems to carry little overhead in time to reorganise an existing data file.

Another feature which I liked was that as well as the expected one record display, controlled by the usual video icons, you can also select *All records* and then use the vertical scroll bar to scroll through all the records on the screen.

SORTING

I now wanted to investigate how I could process the data so far entered, starting with the sort option. This allows you to select one or more whole fields to act as a key for the sort process, and sorting can be in ascending or descending order on each field used. The sort window lets you select the relevant fields and other details with the mouse very simply.

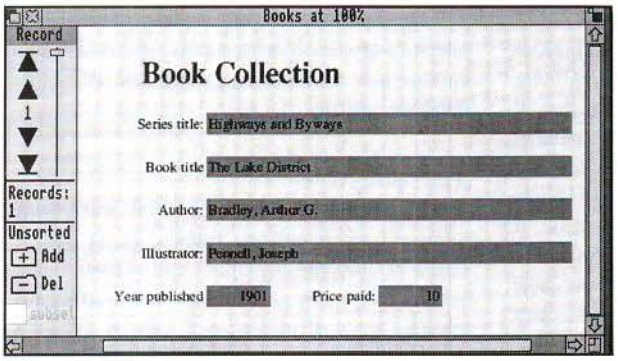


Figure 3. The One Record display used for data entry and viewing

AdvanceDB remembers the last sort specification, but no more. It will use this to insert any new records into their correct place within the file. However, if you need to order a file in more than one way, then you will have to re-sort the file each time. You cannot access files using one or more indexes, and once a file has been sorted there is no way of getting back to the original unsorted order. The lack of indexing is likely to be most acute if you use large files, as much time will then be spent on sorting.

SEARCHING

The other main processing facility is that of searching. The search window shows a replica of the card layout, identical to that used in the normal record display. Enter any data into one or more fields and click on Search, and your database will be searched for matching records. I tried a search for 'Griggs' (the illustrator of some of my books), but encountered an error box - I had put a comma after each surname. No real problem, but AdvanceDB, treating the failure to find any matching records as an error, had reverted back to the One Record display, so it was a case of selecting the Search option and trying again, this time using a wildcard to cope with the comma.

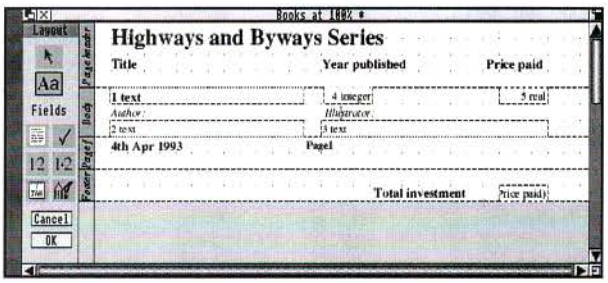


Figure 4. Designing a report layout including page header, page footer and report footer

In fact, correct use of the '?' and '*' wildcard characters is essential. AdvanceDB doesn't search for a specified string *anywhere* within a field; it searches for an exact match with the whole field. Thus to find 'Griggs' I had to specify 'Griggs*' as the search string. This is fine, but would still have failed had there been two illustrators of which the second was 'Griggs'. However, a search string of '*Griggs*' would have succeeded. AdvanceDB also provides a number of search operators (>, <, <=, >=, <>) with the expected meanings, but there is no way of relating different fields other than an implied logical 'AND' (i.e. you cannot search for a set of characters which might appear in one or more fields - like a town name in an address).

When a search is performed, AdvanceDB creates a subset of the original file. Further searches can then be applied to that subset to refine it further,

or a return made to the whole database. If one subset has already been created, a return to the whole database to perform another search automatically adds the new matched records to the current subset. In effect, AdvanceDB can only manage one subset at a time, either discarding a previous one to form a new one, or adding new matching records to an existing subset. There is no easy way of identifying a subset once created, so it can be a little confusing as to what set of records you are looking at.

East Anglia	1901	3.5
Author:	*Illustrator:*	
Dutt, William A.	Pennell, Joseph	
The Lake District	1901	10
Author:	*Illustrator:*	
Bradley, Arthur G.	Pennell, Joseph	
Hertfordshire	1902	7.5
Author:	*Illustrator:*	
Tompkins, Herbert W.	Griggs, Frederick L.	
South Wales	1903	6.5
Author:	*Illustrator:*	
Bradley, Arthur G.	Griggs, Frederick G.	
Sussex	1904	15
Author:	*Illustrator:*	
Lucas, E.V.	Griggs, Frederick L.	
Derbyshire	1905	4
Author:	*Illustrator:*	
Firth, J.B.	Fricbam, Nelly	

Figure 5. Part of printed report from report layout in figure 4

REPORT GENERATION

I have used and been involved with databases over many years, and one area of weakness exhibited by many systems in my view, is that of report generation. Essentially I want to be able to create a report or form, placing data from my file plus any additional text and or graphics wherever I like within that form, and in whatever style I choose. If necessary, I would like to be able to print more than one report per page of paper if space permits. So how does AdvanceDB shape up?

Well, first inspection of the manual proved quite encouraging. AdvanceDB incorporates a *Report Layout Editor*, and by and large I was not disappointed with its capabilities. Selecting this option provides a window layout much like that used to define the record card layout, and with the same control over positioning, field size, use of text, colours and graphics to build up a complete outline form. Moreover, there is provision for page headers and footers, and report headers and footers, all most comprehensive (see figure 4). And because of the similarity to initial record design, it is easy to learn and to use. At any time, in report design, clicking on an 'OK' button will open a window allowing you to scroll through the report on screen. This incorporates the headers and footers referred to above, and page breaks are clearly marked. I found this quite impressive. The report can also be printed (of course) - see figure 5.

There are a number of other useful details. You can select any suitable field and from this create a *summary* field for a sum, average, or count. However, separate page subtotals are impossible. As with all AdvanceDB displays, real numbers are truncated if there are any trailing zeros, so money sums are impossible to show correctly in pounds and pence, and there is no facility for including a currency symbol - a shame. If you select a subset of records using the Search option, then any report will apply to that subset.

There is, in my view, one major weakness with AdvanceDB's report generation - there is no facility for saving report layouts by name, and recalling them as required. There is only one current report. Admittedly this can and will be saved with everything else, but as soon as you start to create a new report layout, the previous one is destroyed. I feel this puts AdvanceDB at a considerable disadvantage, compared with other database systems.

THE MANUAL

While I found the manual in some ways to be admirable, it is entirely tutorial in its nature, based around the personnel and activities of a fictitious company. This means that locating any specific piece of information can be difficult, involving as it does a browse through all the relevant pages hoping to find what you need. A concise summary of database features would, I feel, have been most useful as a quick reference.

CONCLUSIONS

In this review of the Advance database, I have tried to cover what seem to me to be the salient features. However, there is more to AdvanceDB, with the import and export of data in CSV and TSV formats, and the facility to save reports in text or Draw formats being worth mentioning. With any database system it is important to be aware or its limitations as well as its capabilities.

As an introduction to database management, AdvanceDB is first rate. As an ongoing tool there are some significant weaknesses: the failure to handle a specified number of decimal places in real numbers being one, the inability to save different report layouts being another. The absence of indexing, and the need for sorting may be further point to watch, depending on your applications.

The crux of the argument is whether AdvanceDB will provide the facilities which you need. I am very attracted by it. It is very easy to use, and better still, it is easy to modify and change most aspects of your database as you go along. The report generator is first class. The menu system is generally well thought out, though the fact that menus can and do change according to context can confuse. It is also not always clear how to move from one part of the application to another.

For the first time user, Acorn has made an excellent choice and provided a package which will meet most initial needs in a way that is genuinely quite easy to understand and to use. Whether it will continue to satisfy a user's needs as these become more demanding depends on the individual. As for myself, I am very tempted to continue using AdvanceDB for the things it is good for, but I shall continue to look for something else which has all of AdvanceDB's good points, plus indexing, better subset management, saving of reports and a few more details. Whether such a product yet exists is another matter altogether.

Product *Advance Integrated Software Suite*
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Working with Images
Part 2: Image Enhancement

by Lee Calcraft

This month I want to look at the ways in which digital images can be processed so as to improve (or alter) their quality or to emphasize certain features. Because what happens in such processes is much easier to understand in relation to mono images, we will confine our discussions here to greyscale images.

Figure 1. Using *add* operations to change the brightness level of the image

To keep this series 'hands-on' we will again make use of a practical software package to illustrate the ideas under discussion - and again the package is a strictly 'budget' number. The *AIM* image processing package is available in the public domain - see details at the end of this article.

USING AIM

AIM (or more precisely AIM II) is installed on the icon bar in the usual way, and may be brought to life by clicking on the icon bar icon. This places a command window and four empty image windows on the screen labelled A to D. A number of images in the AIM format are supplied on the disc, and these can be loaded by dragging them to any of the four windows. The images are 256 level greyscale, though they are only displayed at 8 grey levels in 16 colour modes or 16 grey levels in 256 colour modes. Mode 21 is a good mode to use if you have a multi-sync monitor, since it gives the best quality display.

Figure 2. Improving contrast with the *equalise* filter

To process an image you can either use the window menu options, or type commands into the special command-line window (which has a nasty redraw bug rendering it unusable if you change mode to one with a different resolution), or simply drag a macro file (see later) to one of the windows. If you use the menu to select processing options, an excessively large dialogue box appears in which you can specify relevant parameters, such as what window contains the source image, and which should contain the result.

AIM's use of multiple windows is very effective, since it makes it easy to experiment with an image without the need to keep reloading it, or undoing what you have done before trying something else. A vast array of operators and filters are supplied, and you can wile away many a long hour experimenting with these. For example:

```
add A B C
```

will add the image in window A to that in B and place the result in window C. The effect is to blend the two images. You can also add, multiply, subtract or divide by constants, with a variety of effects.

When AIM performs mathematical operations on images in this way, it simply takes the source image (or images) one pixel at a time and applies

the chosen operator to its brightness level to generate the brightness level of the corresponding pixel in the output image. Thus in the first example, if the first pixel in image A was set to the value 0, and the first in image B was set to 100, the first pixel in the resultant image would be set to 50 (being the normalised sum of the two values), and so on.

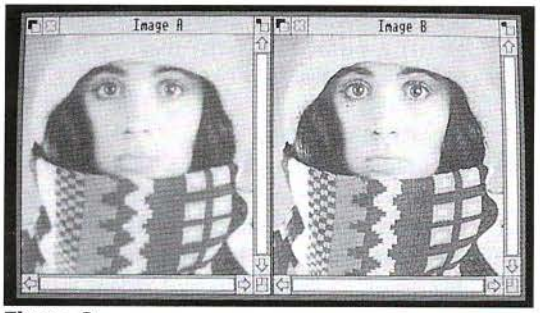

Figure 3.
Sharpening an image with the *enhance* filter

Figure 1 shows the effects of adding and subtracting constants to an image. Window A shows the original (supplied with AIM), while image B is A+100, and C is A-100. The effect is similar to increasing and decreasing brightness on a television without altering the contrast.

AIM also allows you to expand the dynamic range of an image. This effectively increases the contrast of the image by increasing the range of greyscales used in it. Figure 2 shows the effect that this has on the low contrast image A.

MATRIX FILTERING

A relatively simple, but extremely powerful form of processing can be carried out by using a so-called matrix filter. This simply involves calculating the intensity of each pixel in an image not only on the basis of the intensity of the source pixel, but taking into account the intensity of the pixels which surround it. In the simplest case, this involves a 3x3 grid centred on the pixel in question.

Suppose we used the following grid as the basis for our filter:

```
1 1 1
1 8 1
1 1 1
```

This means that each pixel in the processed image would be made up of 8 parts of the original pixel plus one part of each of the 8 surrounding pixels (normalised by dividing the result by 16). The effect of this is to soften or slightly blur any image which is passed through this filter.

SHARPENING AN IMAGE

Almost as if by magic, it is possible to actually sharpen an image by changing the grid parameters. For example, the grid:

```
 0 -1  0
-1  5 -1
 0 -1  0
```

(called an *enhance* filter in AIM terminology) will bring into focus that which is blurred. It does this because in a blurred image (e.g. an out-of-focus camera image) each point on the image has been influenced by light from adjacent parts of the original object. The *enhance* filter attempts to reverse this process. Just how effective it can be may be seen from image B in figure 3, where it has been used to sharpen the original image A.

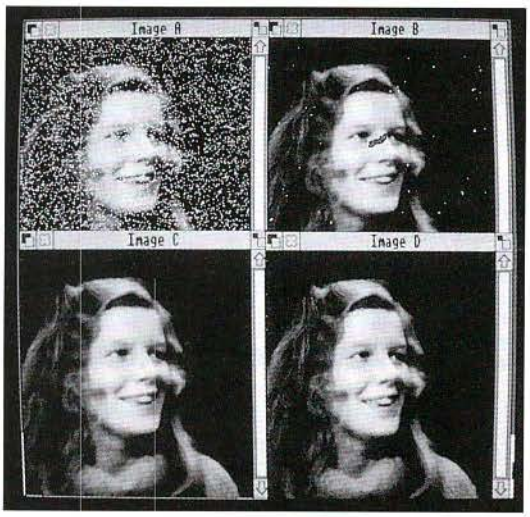

Figure 4.
Removing shot noise using the *median* filter

REMOVING NOISE FROM AN IMAGE

If you find it hard to believe the images in figure 3 (assuming that you can discern the difference once they have been reproduced in print), you will find the sequence in figure 4 very hard to credit. Image A is the original, and is degraded with random noise in the form of bright white dots (called shot noise). This image has been passed through AIM's *median* filter, and the result appears as image B. The median filter uses a 3x3 grid similar to those discussed above, and replaces the pixel at the centre of the grid with the median value (the middle value) of its 8 neighbours.

As you can see, this has had a pretty dramatic effect on the spots. Those that remain will have been at the centre of clusters of spots. A second pass using the same filter gets rid of the remainder. Finally, since we have blurred the image in removing the spots, I have attempted to refocus it by using *enhance*. This makes the image a little too grainy, so what appears in D is a combination of the enhanced and the unenhanced image at a ratio of 1 part to 2. An even better result can be obtained by enhancing the result of the first *median* filter pass before using it a second time.

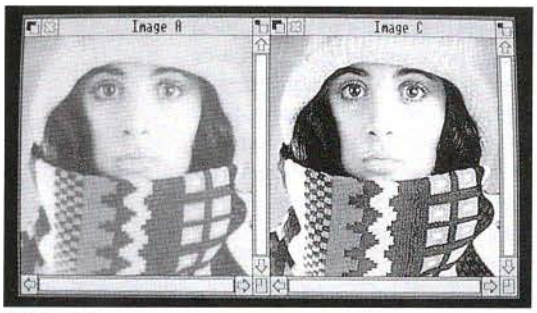

Figure 5. The *_improve* macro in use

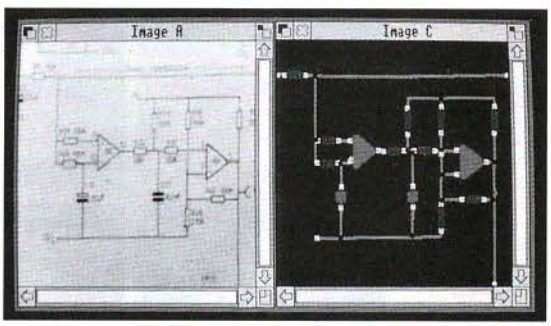

Figure 6. Extracting details from a faded circuit diagram with the *demosch* macro

USING MACROS

AIM also allows processing to be controlled by macros. These are text files containing a series of commands. More than 20 are supplied with the package. For example, the macro called *_improve* contains the following:

```
* image improvement.
* the source image should be in A
hist        * display the histogram
nlapl a b   * laplace filter
add a b     * add to original
equal b c   * histogram equalization
hist c      * show histogram of result
gdisp a     * remove the histogram
gdisp c     * remove the histogram
```

Lines beginning with an asterisk are comments. The first command *hist* displays a histogram of greyscales in the original image. The second applies a Laplacian filter (a variant on the 3x3 grid filter) to the image in A and displays the result in B. The third adds the images in A and B, and puts the result in B.

An equalisation of greyscales is then carried out on B, and the result placed in C. The last three commands in the macro again deal with the display of histograms. The result of the image enhancing process appears in window C, and as you can (hopefully) see from figure 5 it has both greater contrast and clarity than the original (shown in window A).

IMAGE ANALYSIS

As a tailpiece to this article, I want to briefly mention the AIM macro called *demosch*. This works on a supplied image of a circuit diagram. The image has very poor contrast, and more awkwardly, its background is of varying density, making it quite a challenge to extract details from it. The 140 line macro however, performs wonders in just a few seconds, and succeeds in extracting all the relevant details from the circuit, recognising them and redrawing the circuit component-by-component, with all unwanted text removed, and with resistors, capacitors, ics and all connection points separately colour coded (see figure 6). In other words it has succeeded in extracting all of the relevant detail from the diagram, and of distinguishing all the individual components and their connections from the circuit.

I should add that the commands used within this macro are all general purpose image processing commands. For example, capacitors are identified as large solid objects, while resistors are taken to be those objects enclosing small holes (found by inverting the image, and then eroding each solid object by a certain number of pixels).

All very clever stuff - and with over 100 different filters, there is a great deal to experiment with. More on images next month.

The AIM image processing package is available from various PD sources including RISC Developments (PD Disc PDX 8 - cost £1.60). You may also purchase the very latest version of AIM together with a 100 page manual from Lingenuity, Wood Farm, Linstead Magna, Halesworth, Suffolk IP19 0DU, tel. (098) 685 477. This costs £25 (no VAT), and part of the proceeds are donated to Delft University in Holland, from where the package originates.

DeskEdit 2

Harness the Power of Desktop Basic and C with

IF YOU TYPE IN OR EDIT BASIC OR C PROGRAMS THEN READ ON:

DeskEdit 2 is an exceptionally powerful desktop editor for Basic programs and C source code - but it is also very easy to use.

- Just open a window and type in your program. Press F3 to save it at any time. Press Ctrl-Shift-F3 and your Basic program will be saved and run interactively from within the Desktop - and if the name of the program is !RunImage then DeskEdit will run the parent application - Magic!
- If you are using line numbers, these are automatically handled for you. When you press Return at the end of a line, a new numbered line will be created for you. And you can renumber the whole program or any part of it directly from the menu.
- All Basic's abbreviations are automatically implemented.
- DeskEdit provides all the search and replace options of Edit plus some very special ones: DeskEdit's *QuickSearch* can take its target from any marked text (to avoid typing), and you can specify that it will only find matches in PROC and FN definitions.
- Special Browsers instantly build up scrollable lists of all defined procedures and functions, and clicking on any one takes you straight to it. You can also have Browsers open for ordinary finds, giving you a list of matches that you can go to instantly.
- DeskEdit contains more than 100 special key combinations -from Ctrl-F which will take you through your program one procedure or function definition at a time to Ctrl-D which inserts the Date.
- A fully customisable Basic Indenter will format selected portions of your program, indenting IF statements, FOR loops, REPEAT loops etc.
- An Undo feature lets you Undo and Redo your editing, and this together with all markers and many other features is optionally saved to disc when you save a program, so when you next load it in, everything is where you left it - you can even undo what you edited the week before!
- A customisable Help facility gives syntax Help on all Basic key words. A *Caret info* feature gives information about the character at the caret; and a file information feature gives you information on any file dragged to DeskEdit's icon when Alt is pressed.
- Finding your place in a program is especially easy with DeskEdit 2. There are numerous markers and position finder features which make scrolling through your program to find a particular line, a thing of the past.
- Plus Backup saves, special delete and tabbing options, a programmer's calculator which can import and export data, a flexible clipboard, powerful printout features, fully customisable user commands, powerful macros etc. etc.

Moreover, DeskEdit is just as at-home with text (handy for editing Obey files, writing letters, or complete books), and with the C language, where it provides most of the features offered to Basic users (where applicable) with some others added - including a syntax checker.

And there is much much more. So much in fact that in ***Archimedes World's*** *review of DeskEdit 2 (February 1993), it awarded a maximum score of 5 out of 5 in all four of its categories:*

Performance	*****
Features	*****
Value for money	*****
Overall	*****

And as you may have heard - ***DESKEDIT IS SO GOOD THAT IT IS USED WITHIN ACORN ITSELF.***

DeskEdit comes with:
- fully illustrated 70 page manual (with index)
- function keystrip
- smart quick reference card
- freebies, including a desktop dustbin and Acorn's multi-file Find application.

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Price: £ 26.95 inc Vat
Upgrade: £9.95 inc Vat (Code PDEXb)

RISC DEVELOPMENTS, 117 Hatfield Rd, St Albans, Herts AL1 4JS. Tel. 0727 840303 Fax 0727 860263

Introducing Internet

Comms expert Ian Burley reveals details of the network used by the professionals. Now you can use it too.

Computers can be very effective communicators and the Arc is no exception. Arc users with a modem have access to a selection of national and global communications networks. You can communicate with literally millions of other people via these networks. Yet, ironically, the amazing competitiveness of electronic mail offered by these systems remains unrealised by the huge majority of computer users.

There are many networks, some more familiar than others - for example CompuServe, Fidonet, X.400, Teletel, Goldnet, Campus 2000, etc. Of these RISC User readers will probably have heard of both Fidonet and CompuServe, but the network we're looking at here is *Internet*, a very affordable email network with some surprising extras.

Internet was originally developed by the US military and adopted by universities in the 1970s to keep Unix-based mini and mainframe users in touch. Eventually Internet spread beyond the education scene and today it's used globally by many companies as well comms enthusiasts. Nobody actually runs a company called Internet, the network is simply a global collection of computers linked up in a common fashion. Acorn itself keeps in touch with its key developers via Internet, and there is even a mailbox address for its customer support department:

```
support.group.@acorn.co.uk
```

Internet is based on a network of major switching centres or 'sites'. These are usually linked via special digital lines, each able to carry several user-sessions at one time. Internet is most commonly used for conveying electronic mail in text form. Messages are usually simple ASCII text, but you can embed program and data files in specially coded (UUCode) form. Utilities like David Pilling's Spark and Sparkplug can extract files coded this way. News bulletins are also relayed around the network covering a wide range of topics. Advanced Internet features like Telnet and FTP (file transfer protocol) enable direct links to host systems across Internet with access to file uploads and downloads.

University or company personnel might use a LAN (Local Area Network) whose server modem periodically connects and transacts mail items with an affiliated Internet service provider site. Examples of these in the UK are *Demon Internet Services* and the University of Kent's *UKNet*. Users have an individual node name and several mailbox addresses can be attached to a node. If BEEBUG was registered on Internet my address might be *ianb@beebug.demon.co.uk*, assuming Demon was the service provider. Some companies are big enough to have their own site addresses. For example, I keep in touch with Felix Andrew, a former Arc games author, who now works in Seattle for Microsoft. His Internet address is simply:

```
felixa@microsoft.com
```

Individuals can be reached via Internet too; I'm a Compulink Information Exchange (CIX) user, and can be contacted there via Internet mail as:

```
iburley@cix.compulink.co.uk
```

Theoretically, all registered Internet sites know how to contact all the other ones. It's more than likely a message will be forwarded between several sites before it reaches its destination. Here is a log of the delivery route of a message I received recently from some Arc fans in Russia:

```
Received: from uknet by cix.compulink.co.uk id aa23520; 1 Feb 93 10:19 GMT
Received: from techno.fuug.fi by ben.uknet.ac.uk via EUnet with SMTP (PP)
          id <sg.13944-1@ben.uknet.ac.uk>; Mon, 1 Feb 1993 09:47:50 +0000
Received: from relcom.kiae.su by techno.fuug.fi with UUCP
          id AA18637 (5.65c/IDA-1.4.4 for iburley@cix.compulink.co.uk);
          Mon, 1 Feb 1993 11:21:44 +0200
Received: by relcom.kiae.su; Mon, 1 Feb 93 11:36:29 +0300
Received: by misis.msk.su (1.65/waf) via UUCP; Mon, 01 Feb 93 11:03:04 MSK
          for iburley@cix.compulink.co.uk
To:       iburley@cix.compulink.co.uk
```

Depending on the route taken, a message can take several hours to arrive, but that compares very well with the postal service, especially over international distances. The network is fault-tolerant, so if one link in the network fails, your message can be routed via another node. It has been speculated that knocking out enemy communications during the Iraq war was hampered because the Iraqi military used an Internet-style network.

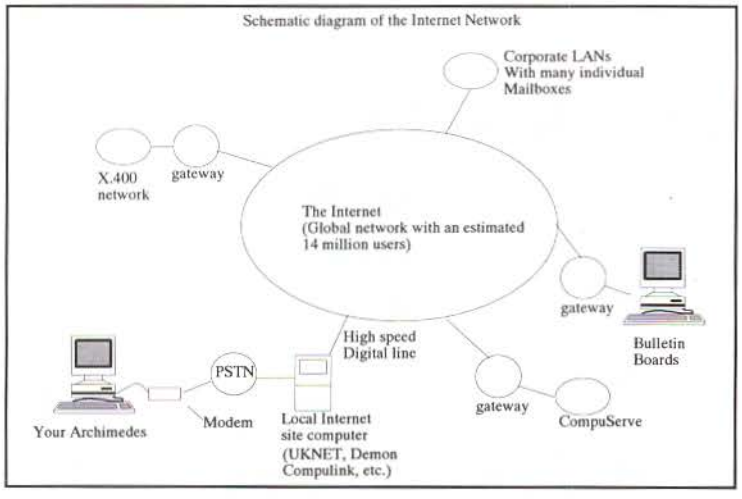
Even if people you wish to contact are on alternative email systems, there's a chance you can still correspond with them. CompuServe and JANET (Joint Academic Network), for example, both have gateways linking them to Internet. The more ambitious bulletin boards offer Internet gateways as well.

Accessing a host using Telnet is just like dialling direct, but instead the connection is made via an Internet. If you're lucky this means low cost calls to a local Internet point even if you're Telnetting to a site hundreds or thousands of miles away. You could even chat with someone in real-time inside a multi-user adventure game thousands of miles away.

To do all this you need a TCP/IP (Transmission Control Protocol/ Internet Protocol) compatible interface program. Demon has a version of the free KA9Q TCP/IP package for connection to Internet which has been ported from the PC to the Arc. Acorn's TCP/IP package has no modem support so is unsuitable. KA9Q is collection of utilities designed simply to establish connections and manage file exchanges using TCP/IP. A simple Telnet terminal is featured but otherwise you may well have to use a conventional terminal program like ARCterm 7 (which has a facility to link it to KA9Q) to make full use of some host features and exchange files if FTP is not offered.

Probably the best value access to Internet currently is provided by Demon Internet. They only charge personal customers a flat fee of £10 a month plus VAT. There are no extra charges for time used or email. For Arc users, Demon offers Usenet feeds which contain Acorn discussion forums like *Comp.sys.Acorn*. This is a good way of hearing about Acorn news before anybody else, and you can publicise your own views there.

To join Demon Internet you must phone them up and give them your credit card number for regular billing. You will need to suggest a node name, and you can create a number of different mailboxes if, say, several people use your computer or to sort business mail from personal mail. Demon will register you while you're on the phone so you can log on straight away. Currently, access centres exist in Warrington and London, so people outside these areas will have to pay long distance phone charges. You will need at least a 2400bps modem and preferably something faster with V42bis data compression rather than MNP5. US Robotics modems switched to HST mode are not recommended either.



Schematic diagram of the Internet Network

It all depends what you make of the system - how much software you want to download, which news feeds to read, which conferences to read and how many users you know of course, but speaking personally, I make simple use of Internet daily via CIX for keeping in touch with friends and colleagues both in the UK and abroad via email. It's also an ideal way of sending articles to some publishers. Internet is a huge somewhat rambling system with a lot to discover, and it's cheap too.

For further information (voice numbers) contact:
Compulink: Tel.081 390 8446
Demon Internet: Tel.081 349 0063

3D Icons for All

Lee Calcraft shows how to smarten up any application using a new feature of RISC OS 3.

Among the many useful features of the new operating system is one which allows you to apply a variety of 3D effects to icons. All you need is Acorn's FormEd to edit the appropriate window templates, a copy of which appears on this month's disc. The editing process involved is simplicity itself, and may be applied both to your own programs and to proprietary applications (providing of course that they use templates).

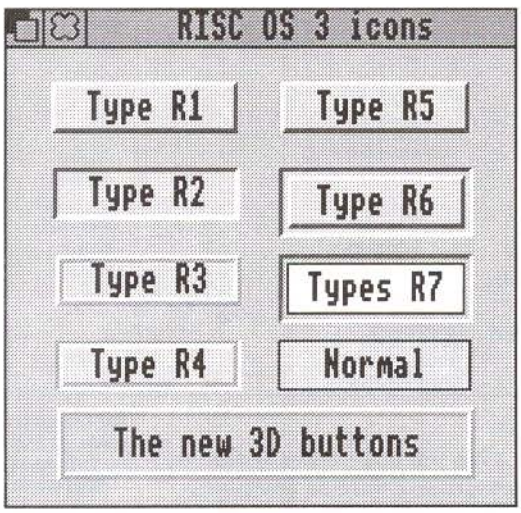


Figure 1. RISC OS 3 provides seven new 3D icon designs

To check that templates are used, just double-click on your application's icon with the Shift key held down. This will show you the contents of the application's directory; and in it there should be a file called *Templates*. You can load this into FormEd either by double-clicking on it, or by dragging it to FormEd's icon on the icon bar.

THE NEW SLAB ICONS

There are 7 new 3D icon types, and they can be brought into play by giving any icon a validation string of *Rn*, where *n* is a number between 1 and 7.

Don't be put off by the word *validation string*: it is just a string of characters which can be applied to any icon to modify its behaviour in various ways. In practice it is trivially easy to do using FormEd - you just select *Valid* from the menu, and type *R1*, or whatever (see later for details).

The effect is dramatic, as you can see from figure 1. This shows the 7 types of new icon compared to the *Normal* RISC OS 2 icon. In Acorn-speak, types R1 to R4 are termed *Slab out*, *Slab in*, *Ridged* and *Channelled*. Types R5 and R6 change in shape when selected - i.e. as you click the mouse over them. Type R5 changes from a *slab out* to a *slab in* when selected; and the inner slab of type R6 does the same. This is really very effective, and can give the impression that a button has been physically pressed.

By default the background colour of the slabs in types R5 and R6 changes colour when depressed. Both go from cream to orange. But the colour is user-definable by adding the number of the required highlight colour to the validation string. Thus by using a string of:

```
R5,15
```

the button will turn light-blue, while:

```
R5,12
```

will keep it cream. The colour numbers are those of the standard Wimp colours, starting at 0 (white), and following the colour sequence in the palette icon up to 15 (light blue).

Finally we come to type R7. This is reserved for writable icons, and as with button type R6 you will probably need to increase the size of the existing icon to leave room for the new borders - otherwise text may appear clipped at the edges.

USING FormEd

If you are familiar with FormEd, you may like to skip this brief section, and move on to the next. To alter the icons in an application, load the relevant template into FormEd as described above. Then double-click on the required window icon in FormEd's viewer (if you are using version 1.24 or later). When the window is on screen, click Menu over the icon that you want to change, and trace the following menu tree (see figure 2):

```
Amend icon #n-> Indirected-> Valid
```

Moving the pointer across the *Valid* entry to the right will bring up a writable icon. Just type *R1*, or whatever, into this and press Return.

Do the same with any other icons you need to change, then resave your templates file from FormEd's viewer window menu, and the job is done. But remember to rename your original Templates file first if you want to keep it as a backup.

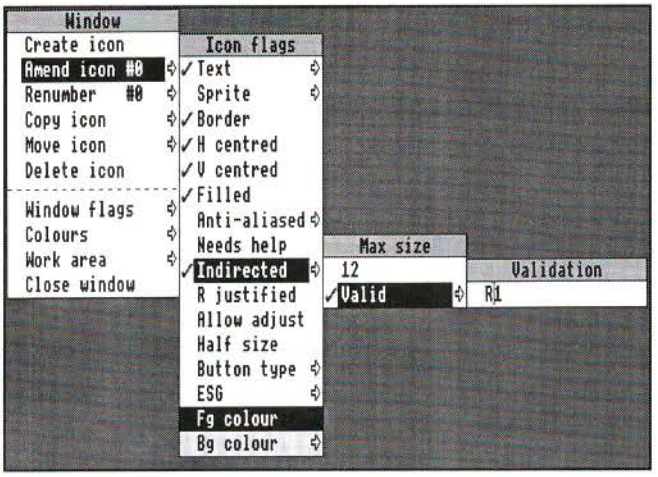


Figure 2.
Altering the validation string using FormEd

SMART BORDERS & DROP SHADOWS

You can produce some very smart borders of the kind shown in figure 3 with the use of R3 type icons. Generally speaking however, you should only attempt this with your own applications because in most cases it involves creating new icons rather than changing old ones, and you will almost certainly upset the numbering of the icons in the window, causing the application to fail.

The trick with borders is that they must have an icon number *lower* than the icons which they surround. This is because when the mouse is clicked on a pile of overlapping icons, the Wimp returns the icon number of the *highest* icon in the stack. Since a border is really a very large icon, it must be *below* all the icons which it appears to surround. So to create a border, simply use the *Create icon* option on the viewer menu to create a new icon, delete the word <*Untitled*> from its text entry, and drag its size out (with Adjust) until it is large enough for your purposes. Change its background colour to colour 1 (assuming that this is the background colour of your window), and give it a validation string of *R3*. Finally renumber it if necessary, so that it has a number lower than all the icons which it surrounds.

The word *Options* in figure 3, with its ridged border, was created in a similar way. It is simply an icon of type R3 with a background of colour 1.

Finally the drop shadow effect in figure 2: this was created by hand, since there is no special icon type for this. The shadow is simply an icon whose background colour is black. The easiest way to create this is to use the *Copy* option to ensure that the shadow is the same size as the parent icon. Then renumber the shadow so that it has a lower number than the parent, otherwise it will appear *above* the icon to be shaded.

A WARNING

There appears to be a minor bug associated with the 3D icons, in that at certain positions the Wimp miscalculates the area which it has to redraw. This manifests itself in low resolution modes (such as mode 12), and appears as an incorrect rendering of the top line of pixels in the icon when it is redrawn. You can get around this just by repositioning the icon in FormEd, or by deleting it and starting again.

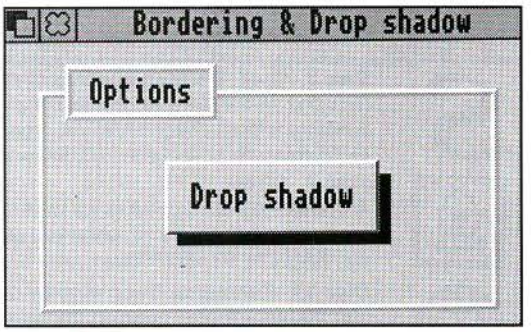


Figure 3.
Smart borders and drop shadows

There is also a more serious bug in RISC OS 3 which causes applications with 3D icons of type 5 or 6 to crash after an *Are you sure you want to quit* message answered in the affirmative. This occurs because the Wimp tries to put the button back in the *slab out* state after the application has been terminated. A module produced by Acorn which avoids this embarrassing state of affairs is included on this month's disc.

This month's disc also contains the example templates used to illustrate this article.

Archimedes Software

SparkFS

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SparkFS is a new compressed filing system that lets you fit more on your discs. Programs work as normal, but files take up less space.

- Reads ARJ, ArcFS, SEA/PKarc, PackdDir, Spark, Zoo, Zip, LZH, Tar, Packit, Stuffit and Compactor archive files.
- Writes SEA/PKarc, Tar, Zip and Spark archive files. Zip files can be used on other machines and retain attributes.
- DES data encryption to password protect your files. Supports UUcode, HQX, AtoB, FCET, Boo and UNIX Compress
- New features in v1.20. Image filing system on RISC OS 3. Zip Deflation. Full LZH support. Fast Zip loading. Application archives.

SparkFS with manual and case is £23.96 inclusive.

(Upgrades, owners of Spark and ArcFS, can deduct £5.99 each)

ArcFax Fax modem program

Allows sending and receiving faxes from desktop using a Class 1 or 2 Fax modem. Received faxes can be saved as sprites. Faxes are sent by printing in the usual way. Script language, telephone directory, scheduling, received image processing. Suitable for SupraFax, TwinComm, Dynalink, Pace. Works with G3 fax machines.

Pace MicroLin FX Fax modem

Suitable for use with ArcFax, this modem will send and receive faxes at 9600bps and can be used as a 2400bps data modem with V42bis MNP data compression/error correction. It is very small and can be operated from a battery. BABT approved, supplied with mains psu, 5 year guarantee, carrying case.

ArcFax £23.96, Pace modem £250, ArcFax and modem £270.

Also with modem Hearsay II, full feature comms program from Risc Developments add £40. Prices fully inclusive. Free Acorn serial lead with modem, state computer model when ordering.

Due to be available now, V32bis version of MicroLin FX - £450 with ArcFax and Hearsay.

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Provides all the features possible in a stand alone spelling checker. Check files, check text in icons, continuous spell check whilst you type, display and correct last error. Edit dictionary. Multiple dictionaries. Supplied with 200,000 words. Fast. *(Owners of MicroSpell 2.XX can upgrade for free).*

Disc 7 - Chess
A Chess program that takes full advantage of RISC OS, running on the desktop in a window. You can work with other programs whilst you play Chess. Many features, computer play, hint, save games, edit etc. BAU Oct '92 said "Chess costs much less and plays better (than Cyber Chess)".

Disc 33 - Panorama. Your window on the World!
180,000 coordinates outlining the lakes, rivers, continents, state boundaries of the World and a program that can produce Draw files from them. You can make maps of any part of the world and then use them in DTP programs. Also positions of 1000 cities. Simple, cylinder, Mercator & perspective projections.

Disc 35 Trace/D2Font - Banish those jaggy blues.
Takes Sprites and turns them into Draw files. Sprite format pictures are plentiful, but if you try to magnify them, they develop jagged edges. Trace allows you to convert them into Draw files which can be made any size you want. With D2Font program for turning Draw files into fonts. Examples included.

Disc 36 WordSquare - Word Puzzle solver
Allows word squares to be solved and generated at random or from a given list of words. Supplied with 200,000 word dictionary. Save word square as Draw file and words as text.

Discs cost £5.99 each. Buy four get fifth one free!

David Pilling, P.O. Box 22, Thornton Cleveleys, Blackpool. FY5 1LR. UK.

Free Air Mail delivery on overseas orders. Please send for free catalogue.

SmartSave

Alan Wrigley's handy module preserves earlier copies of your documents, and prevents you from accidentally overwriting a file of the same name when saving.

Have you ever wanted to refer to an earlier version of a file that was overwritten an hour ago - or cursed as you realise you've just overwritten something important by saving a new file with the same name? If you have, then *SmartSave* is just what you need.

What SmartSave does is to intercept the filing system vectors when a file is being saved, and if a file of that name already exists, it copies it to a new file of the same name but with a sequential numeric identification tag added. For example, an existing file called *TextFile* will be copied as *TextFile01* before *TextFile* itself is overwritten by the new save operation. The next time the file is saved, the current *TextFile* will be copied as *TextFile02*, and so on up to *TextFile99*. Thus the latest version of a file is always the one with the original unmodified filename, and all earlier versions have a two-digit suffix, the earliest copy being the lowest number.

If the filename which results from adding the suffix is longer than 10 characters, the original name is truncated before the sequential number is added. For example, *Templates* would be copied as *Template01*. Figure 1 shows an example directory with a number of files together with their earlier versions.

SmartSave is completely transparent in use, and should work with most RISC OS applications as it intercepts both the *FileV* and *FindV* vectors. Some applications such as Draw use both vectors in one filing operation, calling "OS_File" first to create an empty file, then "OS_Find" to open it for writing. Since both vectors must be intercepted to cater for applications such as Edit which use only *FileV*, and those such as Ovation which use only *FindV*, this would normally result in two extra files being created when a Draw document is saved. SmartSave gets round this by reading the monotonic timer at each operation, and only responding to a call to *FindV* if no call to *FileV* has been made in the previous 2 seconds. This will upset any programs which save two separate files within the space of 2 seconds, but unfortunately there is no other way to cater for the different filing methods adopted by various applications.

You will quickly appreciate the value of SmartSave once you have it installed. It is particularly user-friendly in that the file with the original name is always the latest version. This is very important if you are saving files whose names are significant to RISC OS, such as *!Sprites*, *Templates* etc., as you can be sure that the latest version will always be used. If the sequential suffix reaches 99 then an error is generated and the new file cannot be saved. However, it is recommended that you clear out old copies of your documents long before any of them reach 99!

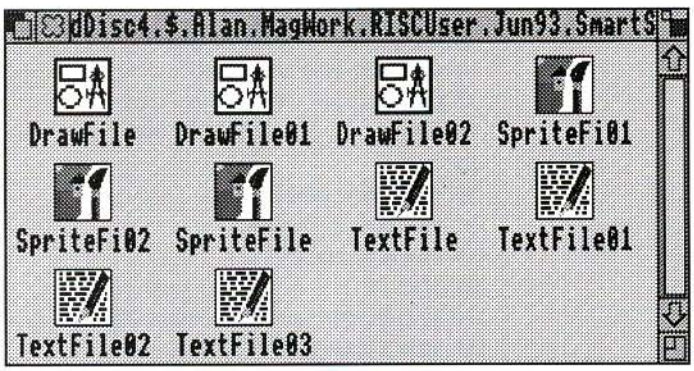


Figure 1. A typical directory viewer showing the effect of using SmartSave

To create the module, type in Listing 1 with great care, and save it before running it. When run, the program will assemble and save a relocatable module called *SmartSave* to the currently selected directory. Double-clicking on this module will install it in your machine and it will become active immediately. Alternatively you can install the module at start-up as part of your boot sequence by including the following line:

```
RMLoad <pathname>.SmartSave
```

where *pathname* points to the location of the module. If for any reason you need to deactivate the sequential save process temporarily, you can go to the command line and type **SmartSaveOff*. The module can be turned back on again with the command **SmartSaveOn*.

This month's magazine disc contains a fully commented version of the source code.

WARNING!

Some commercial applications, notably PipeDream4, write to their program disc when it is first accessed, as part of the installation procedure. SmartSave can upset this procedure, and in some cases render the application unusable. Make sure that SmartSave is not installed, or is de-activated, before opening a directory viewer for the first time on any brand new commercial application disc.

```
10 REM            >Source
20 REM Program    SmartSave module
30 REM Version    A 1.00
40 REM Author     Alan Wrigley
50 REM RISC User  June 1993
60 REM Program    Subject to copyright
70 REM            Not public domain
80 :
90 DIM code% 1024
100 FOR i%=4 TO 7 STEP3
110 P%=0:O%=code%
120 [OPT i%
130 EQUD 0:EQUD init:EQUD final:EQUD 0
140 EQUD title:EQUD help:EQUD comms
150 :
160 .title EQUS "SmartSave":EQUB 0
170 :
180 .help EQUS "SmartSave":EQUB 9
190 EQUS "1.00 (29 Mar 1993)":EQUB 0
200 ALIGN
210 :
220 .comms EQUS "SmartSaveOn":EQUB 0
230 ALIGN
240 EQUD on:EQUD 0:EQUD 0:EQUD help1
250 EQUS "SmartSaveOff":EQUB 0
260 ALIGN
270 EQUD release:EQUD 0
280 EQUD 0:EQUD help2:EQUD 0
290 :
300 .help1
310 EQUS "*SmartSaveOn switches on the
SmartSave module":EQUB 0
320 :
330 .help2
340 EQUS "*SmartSaveOff switches off t
he SmartSave module":EQUB 0
350 ALIGN
360 :
370 .on
380 STMFD r13!,{r14}:BL claim
390 BVS badvector:LDMFD r13!,{pc}
400 :
410 .init
420 STMFD r13!,{r14}:MOV r0,#6
430 MOV r3,#536:SWI "XOS_Module"
440 LDMVSFD r13!,{pc}:STR r2,[r12]
450 BL claim:BVS badvector
460 SWI "XOS_ReadMonotonicTime"
470 LDR r2,[r12]:STR r0,[r2,#532]
480 LDMFD r13!,{pc}
490 :
500 .final
510 STMFD r13!,{r14}:BL release
520 MOV r0,#7:SWI "XOS_Module"
530 LDMFD r13!,{pc}
540 :
550 .claim
560 STMFD r13!,{r14}:MOV r6,#1
570 MOV r0,#8:ADR r1,filevec
580 LDR r2,[r12]:SWI "XOS_Claim"
590 MOVVS r6,#0:MOVVC r0,#13
600 ADRVC r1,findvec:SWIVC "XOS_Claim"
610 LDMFD r13!,{pc}
620 :
630 .release
640 STMFD r13!,{r14}
650 MOV r0,#8:ADR r1,filevec
660 LDR r2,[r12]:SWI "XOS_Release"
670 MOV r0,#13:ADR r1,findvec
680 SWI "XOS_Release":LDMFD r13!,{pc}
690 :
700 .badvector
710 MOV r5,r0:LDR r2,[r12]:CMP r6,#1
720 MOVEQ r0,#8:ADREQ r1,filevec
730 SWIEQ "XOS_Release":MOV r0,#7
740 SWI "XOS_Module":MOV r0,r5
750 LDMFD r13!,{r14}
```

```
 760 ORRS pc,r14,#1<<28
 770 :
 780 .findvec
 790 TST r0,#&80:MOVEQS pc,r14
 800 STMFD r13!,{r0-r11,r14}
 810 SWI "XOS_ReadMonotonicTime"
 820 LDR r3,[r12,#532]:SUB r0,r0,r3
 830 CMP r0,#200:BGT transfer
 840 LDMFD r13!,{r0-r11,pc}^
 850 :
 860 .filevec
 870 CMP r0,#0:CMPNE r0,#6
 880 CMPNE r0,#7:CMPNE r0,#10
 890 CMPNE r0,#11:MOVNES pc,r14
 900 STMFD r13!,{r0-r11,r14}
 910 SWI "XOS_ReadMonotonicTime"
 920 STR r0,[r12,#532]
 930 :
 940 .transfer
 950 MOV r2,r12
 960 :
 970 .tfrloop
 980 LDRB r0,[r1],#1:STRB r0,[r2],#1
 990 CMP r0,#32:BGE tfrloop
1000 MOV r1,r12:MOV r0,#5
1010 SWI "XOS_File"
1020 CMP r0,#0:CMPNE r4,#0
1030 LDMEQFD r13!,{r0-r11,pc}^
1040 LDR r0,con:STR r0,[r12,#528]
1050 ADD r2,r12,#256
1060 :
1070 .getfile
1080 LDRB r0,[r1],#1:CMP r0,#32
1090 STRGEB r0,[r2],#1:BGE getfile
1100 MOV r10,r2:ADD r9,r12,#255
1110 :
1120 .getpath
1130 LDRB r0,[r2,#-1]!:CMP r0,#46
1140 CMPNE r2,r9:BNE getpath:CMP r2,r9
1150 MOVNE r0,#0:STRNEB r0,[r2]
1160 ADDNE r1,r12,#256:ADREQ r1,con+4
1170 MOVNE r11,#1:MOVEQ r11,#0
1180 ADD r6,r2,#1:SUB r8,r10,r6
1190 :
1200 .checklen
1210 RSB r0,r8,#10:CMP r0,#2
1220 SUBLT r10,r10,#1:SUBLT r8,r8,#1
1230 BLT checklen
1240 MOV r0,#42:STRB r0,[r10]
1250 MOV r0,#0:STRB r0,[r10,#1]
1260 ADD r2,r12,#512
1270 ADD r7,r2,r8:MOV r5,#16:MOV r4,#0
1280 :
1290 .cat
1300 CMN r4,#1:BEQ copy
1310 MOV r0,#9:MOV r3,#1:SWI "XOS_GBPB"
1320 CMP r3,#0:BEQ cat:LDRB r0,[r7]
1330 CMP r0,#48:BLT cat
1340 CMP r0,#57:BGT cat
1350 LDRB r9,[r12,#528]
1360 CMP r0,r9:BLT cat:BGE update
1370 LDRB r0,[r7,#1]
1380 LDRB r9,[r12,#529]
1390 CMP r0,r9:BLE cat
1400 :
1410 .update
1420 LDRB r0,[r7]:STRB r0,[r12,#528]
1430 LDRB r0,[r7,#1]
1440 STRB r0,[r12,#529]:B cat
1450 :
1460 .copy
1470 LDRB r0,[r12,#528]
1480 LDRB r1,[r12,#529]
1490 ADD r1,r1,#1:CMP r1,#57
1500 ADDGT r0,r0,#1:MOVGT r1,#48
1510 CMP r0,#57:BGT toobig
1520 STRB r0,[r10],#1:STRB r1,[r10],#1
1530 MOV r0,#0:STRB r0,[r10]:CMP r11,#1
1540 MOVEQ r0,#46:STREQB r0,[r6,#-1]
1550 MOV r1,r12:ADD r2,r1,#256
1560 MOV r0,#26:MOV r3,#0
1570 SWI "XOS_FSControl":STRVS r0,[r12]
1580 LDMVSFD r13!,{r0-r11,r14}
1590 LDRVS r0,[r12]:LDMVSFD r13!,{r14}
1600 ORRVSS pc,r14,#1<<28
1610 LDMFD r13!,{r0-r11,pc}^
1620 :
1630 .con EQUD &3030:EQUD 0
1640 :
1650 .toobig
1660 LDMFD r13!,{r0-r11,r14}
1670 ADR r0,over99:LDMFD r13!,{r14}
1680 ORRS pc,r14,#1<<28
1690 :
1700 .over99
1710 EQUD 1:EQUS "Can't save file - Sma
rtSave suffix already at maximum":EQUB 0
1720 ALIGN
1730 :
1740 .name EQUS "SmartSave":EQUB 0
1750 :
1760 ]NEXT
1770 SYS "OS_File",10,"SmartSave",&FFA,
,code%,0%
```

Customising the RISC OS 3 Desktop Part 2: New-look windows and tool icons

by Richard Hallas

The command *IconSprites is one of the most frequently executed commands on the Desktop, used as it is to merge all application sprites into the Desktop's sprite pool. In RISC OS 3.1 it has a new, more obscure companion: **ToolSprites*. This works in a similar way to *IconSprites, but sets up the sprites to be used in building window borders. These can now be fully customised, and the principles are outlined here with reference to a new application, *SetTools*, supplied on this month's disc. This is conceived as a companion to the SetIcons application provided on the RISC OS 3 Applications discs (it is presented in the same style), although any such application should be run *after* SetIcons for a reason which will become apparent later.

The default icons used as window tools are stored in a file called *Tools* within the directory *Resources:$.Resources.Wimp*. Acorn recommends that the format of this file is followed for any redefinitions of the window tools, but fails to mention the fact that there are a lot of extra icons which are not provided in this file. Not only is it possible to redefine the standard tools, it is also possible to provide alternative versions of them for when they are clicked on, and to redefine the scroll bars and title bar.

The SetTools application provides options for either resetting the standard RISC OS 3 tools, setting up the old RISC OS 2 tools, or using a brand new set with all the possible new tools defined. The new set is 3D in appearance, with tools that press inwards when you click on them, and with scroll bars in the style of brushed metal rods. The tools look very much at home with applications using 3D icons such as Impression, and add quite a classy feel to the Desktop.

STRUCTURE OF THE TOOLS

If you examine the sprite file *Tools* within *Resources:*, or *NewTools* within the SetTools application, you will see all the possible tool icons. You should follow the format of the sprites in this file if you wish to define your own tools. Each tool has four variants: *tool*, *tool0*, *tool22* and *tool23*, following the naming convention used with the *IconSprites command. That is: *tool* is a standard sprite, used if all else fails; *tool0* is for use in standard monochrome modes; *tool22* is for use in multisync modes, and *tool23* is for use in high resolution (or multisync) monochrome modes. There is, it seems, a bug in the window manager which causes the tools with suffix '0' never to be used, but this will presumably be fixed in the future.

The names of the tool sprites should be self-explanatory: *bicon* for Back icon, *sicon* for Size icon etc. The *blicon* sprite is the Blank icon which is used when a window has both scroll bars but no size icon. Nearly all the square tools such as these have a standard size and exist in two forms: the normal tool and the 'pressed' version, whose name is prefixed by 'p'. So *uicon* is the up-arrow, and *puicon* is the pressed version. There is no 'pressed' version of the toggle-size or close icons, since these change the window's state immediately.

In addition to these, there are some sprite components which are fastened together to make the scroll bars and title bar. Again, the names are self-explanatory, with four components for the scroll-bar wells: a cap for each end, and a left/right and top/bottom half for each well (which appear on either side of the slider). The slider itself has a cap at either end and a mid-section, and each of these three components can also have a pressed version.

The title bar (used by both windows and menus) also has a left and right cap and mid-section and

a pressed version of each. In fact, the mid-section consists of 'top' and 'bottom' sections which can either meet in the middle, providing a complete background for the title bar, or can just provide a couple of lines to indicate 'pressing'. Unfortunately, there is another bug here: for normal use there is no problem, but if an anti-aliased font is used in the title bar, the background rectangle is not updated, which looks very messy (Acorn is aware of this problem). In this situation you should revert to using the standard tools.

It is still possible to colour windows, even though they are now made from sprites: any masked pixels in the tool sprites are coloured automatically to the correct window colours, and change when the window gains the input focus.

Another advantage of the new sprite system is that the sprites can be any size. A set of miniature window tools can give a little bit of extra Desktop space, or a set of large tools may be helpful for visually or motor-impaired users. Windows automatically size themselves to fit the sprites you provide. The sizes don't matter as long as all the icons are of the same width along each edge of the window; the size of the largest icon is used if this is not the case (remember that the blank icon is also counted). Note that if you increase the title bar's height, the text printed on it is still centred, and not all programs will update the text correctly if, say, an asterisk is added, since a larger title bar is not expected.

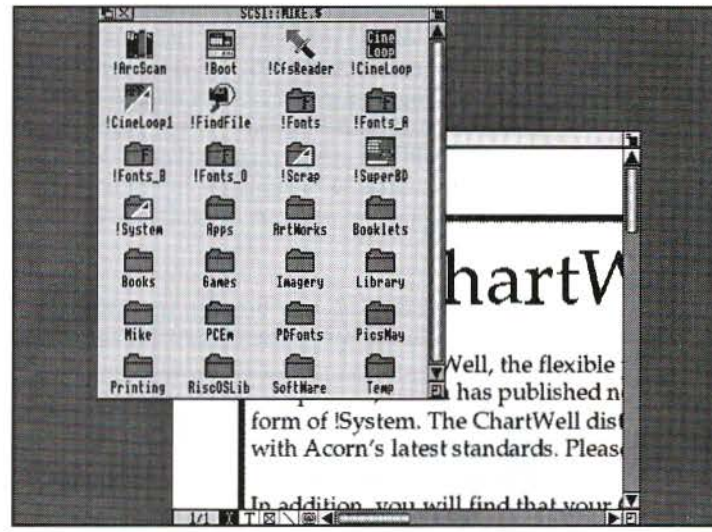
There are a couple of points to note in conjunction with the standard tools built into the ROM. All these tools have black borders, which override any change to the normal window border colour. The new tools provided by SetTools have masked borders so that changes in window colour can show through. A similar situation exists with the grey panel in the blank icon, which should strictly be masked.

EXTRA FUNCTIONS OF SetTools

SetTools will, in addition to setting the window tools, set up a few sprites to match the window style. The sprites it alters are the menu arrow and tick, and the blue arrow icons (used in some windows), and it will select a high or low resolution set, depending on which you have already set with SetIcons. This is the reason SetIcons should be run before SetTools.

As with window icons, RISC OS 3 now uses sprites rather than text characters as the tick and arrow symbols in menus. Under RISC OS 2, these symbols would appear in white on the darker colours. Unfortunately, under RISC OS 3 this is no longer the case, so if you have a menu with a dark background, a tick or arrow can be difficult (or impossible) to see on it. For this reason, the SetTools version of the arrow has a white centre so that it will always show up. SetTools works in a similar way to SetIcons: it will modify itself when you change the tool setting and click 'OK', and it will set up the appropriate tools when 'seen' by the Filer. However, if the disc it is on is write-protected, the self-modification will not take place.

Note: the SetTools application is supplied on this month's magazine disc.



New 3D style window borders

Book Reviews

We present reviews of two recent books published by Dabs Press which are sure to be of interest to many Archimedes owners.

GRAPHICS ON THE ARM MACHINES
by Roger Amos

Reviewed by Richard Hallas

Roger Amos' new book attempts to be a comprehensive guide to the various kinds of graphics systems and software packages available to users of Acorn RISC OS computers, and to the basic principles underlying them. It is a substantial B5 size paperback of 430 pages, with an additional colour plate section in the middle containing 16 high quality full-colour illustrations, many of which are referred to in the text.

The book is divided, very broadly, into two halves, one dealing with vector (Draw-type) and one with pixel (Paint-type) graphics, although there is a certain amount of overlap between the two areas. The book also deals with text in the form of outline fonts and packages to handle these. As such, text can be seen both as an extension of vector graphics and as a valuable component of graphic design. Both topics of vector and pixel graphics have dedicated chapters explaining fundamental ideas, and these evolve into discussions of some of the less straightforward aspects of Draw and Paint.

Under the general heading of vector graphics, further chapters discuss more advanced vector graphics packages, three dimensional graphics, and the creation of Draw files from Basic (in the context of a commercial package which provides routines to facilitate this). Pixel graphics chapters concern themselves with art packages, the use of scanners and digitisers, and image processing; and the two overall topics are brought together by chapters on ray tracing, animation of images from various sources, and tracing (the conversion of pixel to vector graphics).

There is also a stand-alone chapter on mathematical graphics, and appendices cover RISC OS colour handling, monochrome and colour printing, the general structure of Draw files, and the various pixel-graphics commands.

A DABHAND GUIDE TO IMPRESSION
by Anne Rooney

Reviewed by Richard Grant

Perhaps it is just as well that Impression has an intuitive feel about it, as the original manual is less than helpful in many areas. If you need a reminder of this, cast your mind back to the first few days after you first installed Impression and wondered just what all those complex menus and their submenus were all about. It is often the case that the best manuals are written by a non-programmer who is not part of the development team. Well, Anne Rooney is an experienced computer journalist who has written previously for both Acorn and Dabhand. Her new book is called "A Dabhand Guide to Impression".

Ms Rooney's expertise is much in evidence in this book. It is written in an easy, highly readable style which leads you rapidly to an understanding of the complexities of creating good DTP documents. The book describes itself as "The definitive guide to the premier DTP package for Acorn machines". While this is an accurate subtitle, the book is definitely of greater value to the novice than to the experienced user.

The book divides naturally into two sections. The first section, about two thirds of the total, is in effect a glorified and much enhanced manual. It covers all the basic aspects of operation, taking the reader through each of the main facilities of Impression without the strict adherence to the menu structure so familiar from the Computer Concepts manual. In many ways this section is what the original manual should have been: the author excels at explaining complex problems in simple language.

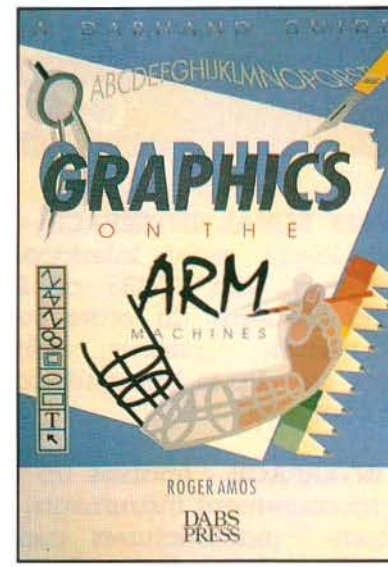
The second section is a paradise for those with problems, covering in some detail the setting up and operation of printer drivers, and the

CRITICISMS

The book makes an admirable attempt to cover all possible kinds of graphics applications available, and is written in a clear, informal and accessible style. I did feel that it tried a little too hard to be all things to all men: although its title could imply otherwise, it is certainly not a book on graphics programming. Rather, it considers graphics in terms of how the computer deals with them in order to increase understanding for the less technically-minded, and in so doing aims to alleviate the frustrations encountered by users who are new to the subject.

Bearing that in mind, the appendices on the structure of Draw files and the sprite-handling commands seem superfluous. The Draw file structure is really only of interest to programmers, and the appendix does not describe it in sufficient detail to be useful in that context. The appendix on the 'SpriteOp' commands is more useful, but still suffers from a lack of comprehensive explanation, and there are no real programming examples.

Certain chapters also contain some fairly lengthy descriptions of particular software packages, providing too much detail for non-users of the packages in question and not enough detail for people who own them already. Finally, given the book's wide-ranging subject matter, I was surprised that there wasn't a single mention of Acorn's Replay.



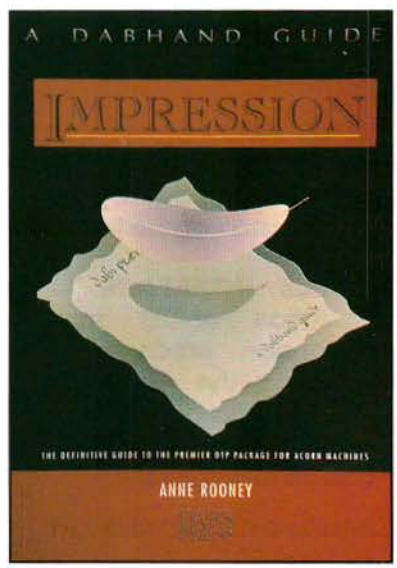
CONCLUSIONS

These few criticisms aside, the book achieves its stated aim very well, as it attempts to enhance creativity through increased basic understanding. It is certainly of more interest to beginners than to technophiles, but there are some sections which should be helpful to virtually all readers, and the specific sections on Draw, FontEd, ChangeFSI and the printing of scanned images are particularly valuable.

---

possibilities for customising Impression. The differences between RISC OS 2 and RISC OS 3 are covered in some detail, and there is also a chapter on the Impression Business Supplement and how this might help in your particular arena. Finally, there is a whole section given over to a checklist of menu options, a rather pointless chapter listing character codes above 160, followed by no less than sixteen pages of information on other Dabhand books and a comprehensive index (one guess how this might have been compiled!). A disc to accompany the book, containing many preformatted documents, is available at a surprisingly small charge, and I particularly liked the tutorials on the disc which demonstrate many of Impression's features in a lively manner.

A book like this inevitably covers a lot of ground that experienced workers will already have covered, but within its pages, there are many sound ideas, from which even the experienced among us are likely to benefit. I liked the idea of setting up all your routine templates in one default document, using Master pages for each separate style of letterheading, and calling up the page to be used by merely altering the working Master page: all your letterheads and standard documents instantly available, loaded automatically! So obvious, really, but I hadn't thought of it.



There are some minor criticisms. The page layout of the book, like others from the same

Continued on page 50

HARDWARE AND SOFTWARE EXPANSION FOR ACORN COMPUTERS

DUAL RS423 SERIAL INTERFACE - two additional RS423 serial interfaces for communicating with RS423 or RS232 devices eg modems (in order to use bulletin boards), printers, plotters, instruments, etc. Up to four cards can be fitted in a computer.

IEEE488 INTERFACE - enables up to 14 test and measurement instruments, from well known manufacturers such as Hewlett-Packard, Fluke, Philips, Tektronix, etc. to be connected to the computer. For example, voltmeters, oscilloscopes, spectrum analysers, function generators, counters, logic analysers, programmable power supplies, plotters, printers, etc.

16 BIT PARALLEL I/O - provides two separate 16 bit input/output ports. Other facilities include four 16 bit counter/timers, two 8 bit shift registers and eight interrupt inputs. Applications range from measurement and control to high speed data input and output.

12 BIT ADC - provides eight single ended inputs each with an input voltage range of -5 to +5 Volts. Up to 166,000 samples per second can be taken.

STEbus INTERFACE - overcomes the limitation of a maximum of four expansion cards in a computer by enabling the use of industry standard STEbus boards in an external input/output sub-system for measurement and control applications.

SCSI DEVICES - internal and external hard disc drives, magneto-optical removable disc drives, tape streamers etc.

FORTRAN 77 COMPILER - completely compatible with the now discontinued Acornsoft compiler.

GINO-F 3D, GINOGRAF, GINOSURF and HERSHEY+ - the FORTRAN subroutine graphics libraries.

Intelligent Interfaces are Bradly Associates distributor for GINO-F 3D, GINOGRAF, GINOSURF for Acorn RISC OS-based Computers.

TERMULATOR - enables a computer to emulate a terminal from the VT range (VT52, VT102 or VT220) or a Tektronix 4010 graphics terminal.

Termulator a trade mark of Acorn Computers Limited is applied to this product under licence from Acorn Computers Limited.

COMPLETE SYSTEMS - configured to customer's requirements by fitting RAM upgrades, hard discs, expansion cards, etc.

ADVICE - SUPPLY - SUPPORT - Intelligent Interfaces were established in 1981 and have enjoyed a long relationship with Acorn Computers. This places them in an ideal position to advise on, supply and support systems purchased from them.

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Hants
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INTELLIGENT INTERFACES

Flash Pocketware

Lee Calcraft takes a brief look at new flashware for the Pocket Book and Series 3.

There appears to be a most welcome spate of new software for the Series 3. This is all supplied on flash EPROM cards, and fits into one of the two drive bays on the machine. All of this new software should work equally well on the Pocket Book, since the two machines are virtually identical in every respect - though it might be prudent to check at the time of purchase.

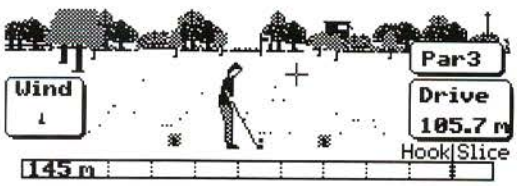
The software comes largely from Psion itself, and is available at the usual outlets including Dixons. The remainder is from a company called Widget, well known in Organiser and Series 3 circles (details at the end of the article).

Battery Life:
100
50
0
AA Used: 12 Hours 0 Minutes
AA Fitted: Mon 15 Feb 1993
AA Today: 0 Hours 0 Minutes
Mains Today: 0 Hours 17 Minutes
Total Today: 0 Hours 17 Minutes
AA: Good Backup: Good Mains: On

PowerCheck from Tools

TOOLS

Tools, at £49.95 inc. from Widget, consists of a rather odd combination of four programs. *FileManager* gives a graphical view of your discs, directories and files, and makes it easier to copy, move and delete files, as well as locating 'lost' files. Perhaps the most useful is *PowerCheck* which records how long batteries have been in your machine, and estimates future life based on average battery life. From its name you might think that the third program, *TaskManager*, is another system utility, but it is actually a to-do list organiser. Finally *Convert* will convert between over 150 currencies, between metric and imperial measurements, and between hex, decimal and binary.

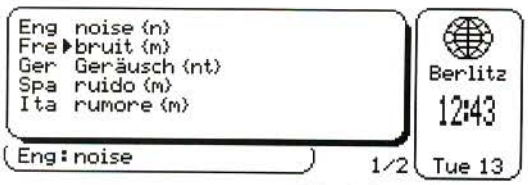


Berlitz interpreter

BERLITZ INTERPRETER

Berlitz Interpreter (£49.95 inc. from Psion) is a neat little application which knows 28,000 common words and expressions in English, French, German, Spanish and Italian. In use, you must select a *source* language (e.g. English), and can then elect to view the resultant translations in either one or all languages simultaneously. When a source word has a number of different meanings, these can be cycled through until you have the sense that you require, and to double check you can easily translate any word back again to see that you have the right meaning.

A nice feature lets you use the translator from within other packages such as the word processor, and there is even a *quiz* option to test your foreign vocabulary, but it is a shame that you cannot add to the main dictionary.



Pitch from Games1

GAMES GALORE

On the lighter side, you can pit your wits against *Chess* (£49.95 inc. from Psion). This features playing levels from novice to champion, and includes 50 classic games. It offers both 2D and 3D graphics, problem solving, game saving, take-back and replay, and is apparently very popular at Acorn. Moving away from the cerebral, there are also two games selections from Psion. These both weigh in at £34.95 inc. and are inspiringly called *Games1* and *Games2*. The former includes Pitch (a golf game with good graphics), Bomz, Rattler, and Alien swarm (would be good if it ran a bit faster); while the latter boasts Jumpy, Slider (a neat sliding puzzle), Reversi and more.

Other new flashware includes finance packs from both companies, and a games pack from Widget, who may be contacted at 121 London Road, Knebworth, Herts SG3 6EX. Tel. (0483) 815 444.

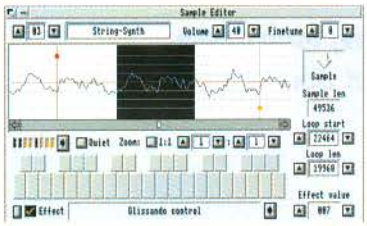
Digital Symphony

The Soundtrack Editor offering

Unrivalled Power

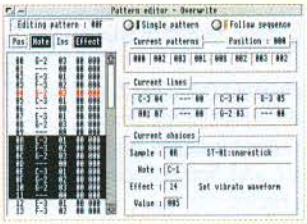
and without doubt the most

Advanced Features



Built in Sample editor, allows you to Cut and Paste parts of the sample. You can try out any of the 40 different special effects, and define a repeat loop by dragging visual markers.

Powerful, deadly accurate, Realtime Monitor, displays Digital Score Data, Vu Bars and Instrument Waveforms.



The Pattern Editor, used in conjunction with the Musical Notation score display, makes editing a track very easy. Once created each pattern can be slotted into the sequence, wherever you wish. Cut and Paste, Copy, Transpose, Exchange, etc... facilities are offered to enhance flexibility.

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Archivist

£29.95 INC

Cards are created with the Designer part of the package, a new form can be designed simply by selecting fields, and dragging them to their required position.

Text, Integer, & Real field types can be set,in addition to multiple format Date fields, and Formula fields with user definable equations.

Alterations, for example - extra fields can be added to a card, even if you have started inputting data, and no data will be lost.

Archivist is able to store and display or play Textfiles, Sprites, Drawfiles, Maestros, Samples and Soundtracks.

Archivist can be interrogated using either of two search routines, Easy Search gives you a duplicate copy of the card, you type the variable to be searched for in the appropriate field, and Archivist does the rest.

For those requiring a little more flexibility, a complex search equation can be built up using mathematical, and Basic Operands.

Of course, Archivist also provides a Search and Replace facility, plus a fast Primary & Secondary Sort routine.

A Clipboard, allowing cut and paste operations, and a user definable Quick Entry routine, speeds up data entry into Archivist considerably.

Card Print allows printing of cards in WYSIWYG format, using of course the standard Outline fonts. (2 supplied)

Reports generator, allows your data to be presented in a tabular form. Archivist also has a specifically designed Label Printer for your Names and Addresses files.

Archivist files are saved compressed to save valuable disc space, and with a Password for privacy if required.

Archivist can automatically produce CSV files, with the option to create Graphbox headers. Also it is possible to save data as a textfile for export to DTP's etc.

Statistics window displays the Averages, Minimums, Maximums and Totals of each field for the entire database.

Archivist is able to Import files from many existing databases, on the Archimedes, as well as the BBC and PC.

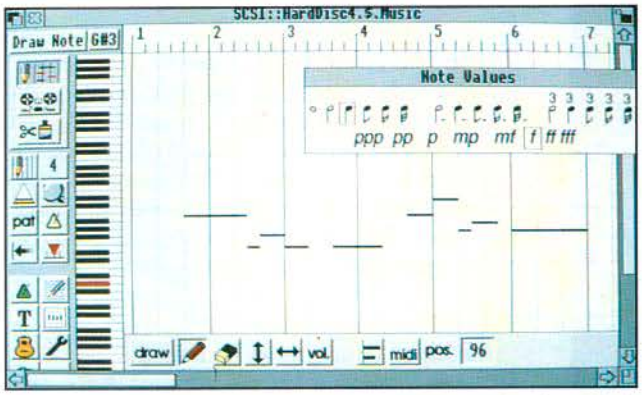
Existing Version 2 users can upgrade to Version 4.70 for just £5, when returning the original disc.

Powerful Database

Serenade your Arc

Ian Waugh explores Clares' latest musical composition for the Arc in the form of a MIDI sequencer.

Serenade is Clares' latest assault on the Archimedes music market, an assault well prepared by Clares' other music programs such as *Rhapsody*, *ScoreDraw*, *VoxBox* and *Rhythm Bed*. However, Serenade is a fully-fledged MIDI sequencer and, unlike many other music programs, it does not use the Arc's internal voices. A MIDI interface, therefore, is essential. Serenade will run on a 1Mb machine, but ideally you need 2Mb or more.



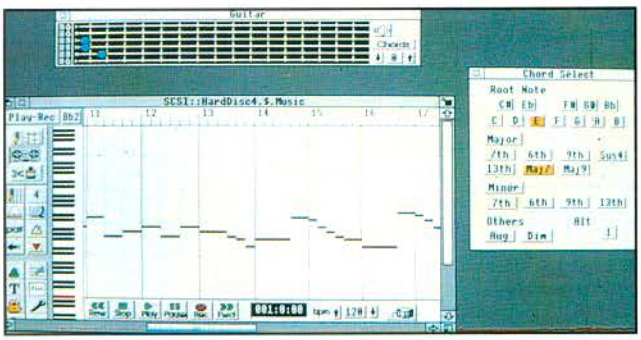
Serenade's main window is also the main editor in which notes are shown as bars on a grid like a piano roll. The Note Values box is used to select note durations for step-time entry.

Serenade has three operating modes - *Edit*, *Record* and *Cut & Paste* - which are selected by icon. While this makes these functions of the program distinct from each other - useful in education - once you're familiar with the program's operation it can be annoying to have to select Record mode in order to play the piece. A separate *Transport* window would be useful here.

Serenade has been designed with an eye to the educational market, and ease of use plays an important part in its design, but it also has many sophisticated features which may well satisfy the majority of home users and even some semi-pros.

Serenade is supplied in the now-standard style of pack used by Clares, with the back cover of the 80-page manual fastened into the packaging, and two discs, a program disc and a resource disc. The application loads onto the icon bar as normal, but does check to see that you have a MIDI interface. The first time the disc must also be initialised with your name and address.

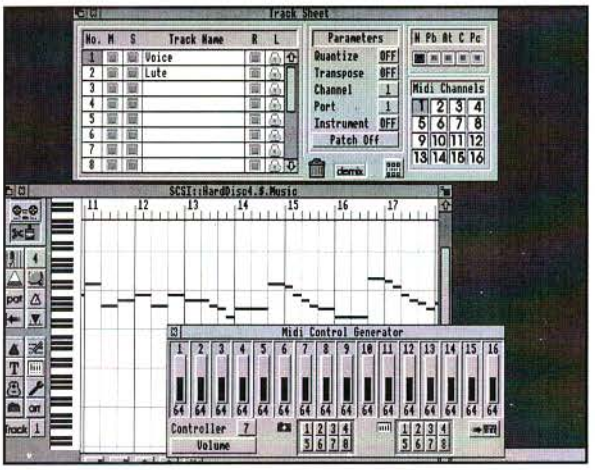
The main window houses a piano roll editor where most of your editing will be done. On the left are over 20 icons which are used to select other windows and various functions, most of which can also be accessed from the menu. The program supports 16 tracks and the display shows one track at a time, although you can 'ghost in' notes on the other tracks. There is also a separate *Tempo* window in which you can draw tempo changes.



You can create your own chords by clicking on the fretboard in the Guitar window or select a wide range of common chords from the Chord Selection box.

Recording involves putting a track into Record mode in the *Track Sheet*, then selecting Record in the transport controls, and then selecting Play. After some use with the program this too can seem long-winded. However, at least you're never in any doubt about what you're doing or are about to do. One nice touch is the *Audition* function which lets you compare an edited version of the song with the original version before making the change permanent.

One very useful and practical feature is Serenade's ability to sync to Rhythm Bed, effectively using Bed as an add-on drum pattern editor. You need Bed version 1.26 or later for this (available from Clares). It doesn't respond to tempo changes yet but once you've created a suitable rhythm you can load it into one of Serenade's tracks and then set up tempo changes.



Serenade's Track Sheet shows the track names. You can assign instruments and Midi channels to each track and perform move and merge functions. The Midi Control Generator lets you edit Controller values for all 16 Midi channels.

You can enter notes in step-time from a MIDI keyboard or by drawing them onto the piano roll grid using a snap-to-grid function if required. Durations are selected from a *Note Value* box. You can *Cut* & *Paste* tracks in increments of a bar, apply similar edits to the complete song, and insert and delete bars. You can also set a time signature although this can't be changed in the middle of a song.

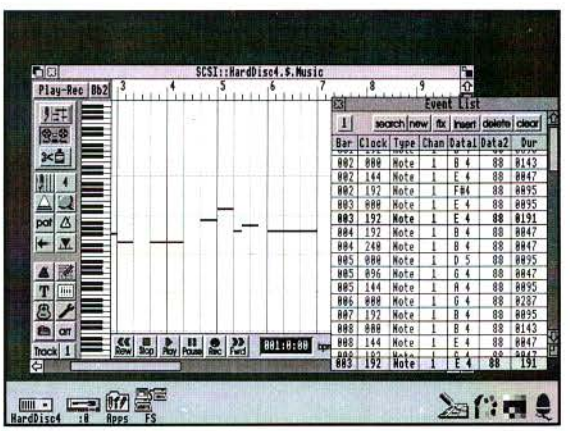
The *Track Sheet* lists the track names plus various other items of information. You can mute and solo tracks and lock them against alteration - another useful education facility. You can force a track to a particular MIDI channel and you can merge tracks, allowing you to have tracks containing data on several channels.

You can assign a *Program Change* to each track. This will override any *Program Change* physically inserted in the first bar of the track, although subsequent changes will be a carried out - which is nice. However, access to sounds on instruments with several sound banks has to be done in the *Event List*.

To edit an event in the Event List you click on it to copy it to an edit line at the bottom of the window. After editing, you click on *Fix* to make the change. It would be very useful if selecting an event in the List selected the corresponding event in the piano roll window and vice versa, although I believe the programmer is looking at implementing this.

Serenade has some other interesting features too. The Guitar window lets you create guitar chords by clicking on chord names and types. The chords are shown on a guitar fretboard and the notes become attached to the cursor so you can drop them into the editor. It would have been nice if these strummed when placed in the track, but perhaps that's asking too much.

With Serenade you don't have to create a song in a linear fashion from beginning to end. The *Arrange* window lets you put parts of the song into an *Arrange* list. For example, if the verse ran from bars 5 to 20 and the chorus from 21 to 28, you could enter the verse in the List followed by the chorus and the verse again. It's not as flexible as using discrete patterns but it's still useful.



Serenade's Event List lets you edit music data at event level - individual notes, program changes, and controller events.

Serenade's default filetype is Standard MIDI File format 1 which makes file transfer between programs and even other computers very easy. However, files take a surprisingly long time to load - a minute or more is not unusual - and the

program can take a further minute or more to do its housekeeping. This needs serious attention.

As a muso of the 'old school' who actually reads the dots, I found the lack of a notation facility one of Serenade's biggest misses. You can load a file into Rhapsody and ScoreDraw but this lacks the immediacy of working with a sequencer-cum-scorewriter, and Rhapsody can have problems with some note resolutions (although Rhapsody 3 is due soon which should remedy some of these problems).

The manual is fairly clear and well laid out although there is a little room for improvement. However, the majority of users should have no trouble using the program.

CONCLUSION

The requirements of the educational market are often similar to those of other users, with ease of use coming high on the list of requirements. Serenade certainly has that. However, some operations such as selecting a track to record on, and having to move an event to the edit line before editing, will seem rather too fussy once some familiarisation sets in. There are a number of other small niggles too.

At the time of writing, Serenade is being updated in response to comments from users. However, there's no need to put off a buying decision because updated discs are being issued free to registered users. If the programmer takes on board all the suggestions he's received then Serenade will soon be a superb program.

As it is, it's still powerful and easy to use and it will appeal to anyone wanting a sequencer which works on more traditional lines than Rhapsody or, indeed, to anyone who doesn't read music notation.

Product:	*Serenade*
Supplier:	*Clares Micro Supplies,* *98 Middlewich Road,* *Northwich,* *Cheshire CW9 7DA.* *Tel. 0606 48511*
Price:	*£135.00 inc. VAT*

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RISC User Disc June 1993

3D Icons for All

3D icons are here! RISC OS 3 lets everybody use snazzy 3D icons for more impressive screen displays, as described in the magazine. This demo application shows the 3D button types built into RISC OS 3, together with an example of 3D borders and drop shadows.

3D Bug Fix

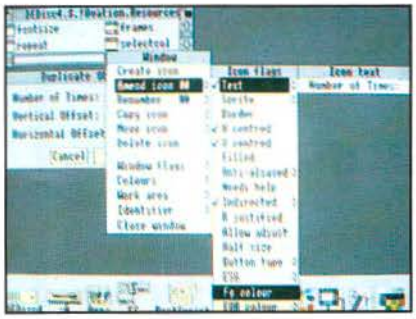
This is a developmental module from Acorn which fixes the 3D slab bug in the RISC OS 3 implementation of 3D icons. With this relocatable module installed in your computer, 3D icons will work as they were intended to do, freeing you to use creative 3D effects in your own windows.

SmartSave

This application provides essential organisation for anyone who is involved in editing files of any kind (text, Basic, or whatever). SmartSave provides sophisticated control over version numbers for your documents, programs and data. Every time an alteration is saved to a file, SmartSave intelligently backs up the previous version of the file to avoid catastrophe. Fully commented source code for the relocatable module is also included.

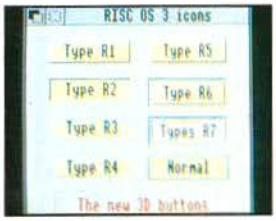
ADDITIONAL ITEMS DESCRIBED IN THE MAGAZINE

FormEd - Version 1.26



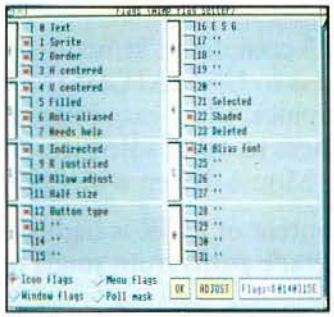
This is the latest version of Acorn's Template Editor supplied under license. FormEd is an essential tool for anyone who is writing Wimp programs, and it provides an easy way for all users to modify existing applications to use the new 3D icons of RISC OS 3.

SetTools for RISC OS 3

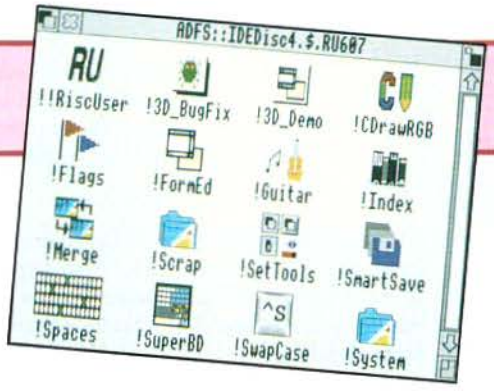


RISC OS 3 gives superb control over the appearance of Desktop windows. This application shows off these facilities, giving you the choice of two sets of 3D window tools. One 3D set features an attractive brushed metallic look, with buttons and icons that press down when clicked or dragged. The other is an economical set of miniature 3D tools for those who need all the screen space they can get, but don't want to compromise on good looks. Standard RISC OS 2 and RISC OS 3 styles are also included as user choices.

Wimp Flags



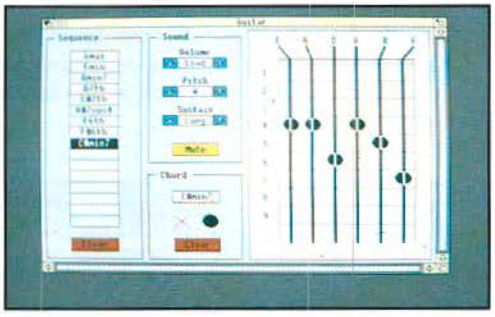
Programming the Wimp involves calculating the bits for various flag settings. Among the more difficult are the 32-bit flags used by RISC OS for icons, windows, menus and the Wimp poll. This flexible application is simplicity itself to use, and completely automates a tedious and time-consuming process: simply select all the options you need, and the program calculates the mask for you. It is equally useful in reverse, to determine the meanings of existing 32-bit flag settings.



This action-packed magazine disc costs just £4.75 inc Vat.

RISC User Guitar Player

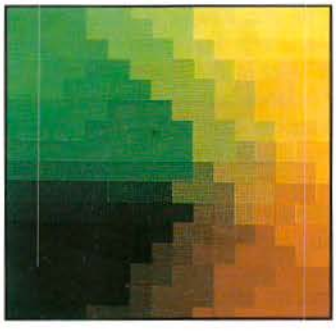
This is a most appealing simulation of a guitar, genuinely interesting and useful to beginner and expert alike.



Makes learning chords fun! Guitar can be used to play sequences of chords, allowing it to be used for accompaniment, and it can be used for tuning too. The guitar strings can be fretted, open or mute, the mouse being used as a plectrum for a highly realistic effect.

BONUS ITEMS

CDraw in Colour



This application includes a set of routines for creating Draw files from within a Basic program. This version has been updated from that published in RISC User 5:8 to use RGB colouring rather than palette colour numbers for improved colouring. The routines give excellent control over fonts, lines, rectangles and other Draw objects, using a simple-to-use syntax. The application includes two demo Draw files.

Updated SuperBD

This is undoubtedly one of the most comprehensive backdrop utilities available. This latest version of SuperBD implements more of the Filer menu commands than Acorn's PinBoard, and files will now load directly into applications from the sticky backdrop - Shift-double-click will load any file into Edit/DeskEdit. Other features include compatibility with DeskEdit's Info facility, and the ability to colour-code groups of icons for clarity.

Spaces Patience Game

Spaces is another challenging game of Patience to follow those published previously. Spaces features the same superbly smooth playing-card graphics to provide endless and addictive relaxation in the Desktop environment. This is Patience with a difference, and will tax even the most devoted player of Patience games.

SwapCase

Another indispensable utility, this handy little utility implements the swap case facility (Ctrl-S) available on most editors, but hitherto not available in writable icons. Once installed, this facility is automatically invoke on all writable icons on the Desktop.

ArcScan Data

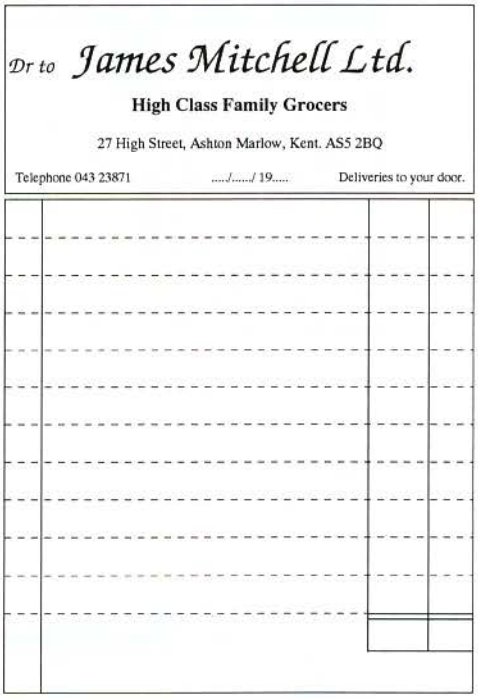
ArcScan Indexes for this month's RISC User and BEEBUG Vol.12 No.1.

Getting the best from Ovation

Bill Nichols continues his survey of the facilities offered by this versatile document processor.

DRAWING LINES

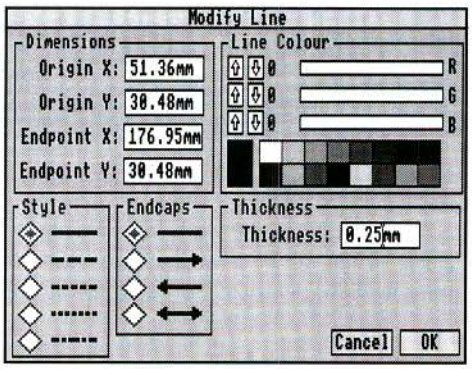
One of the most useful tools within Ovation, which I find myself using over and over again, is the line drawing tool - the fourth one along in the tool panel at the lower left of the screen. Ovation treats lines as *objects*, and they can be manipulated within a document in exactly the same way as are text frames and picture frames, from the *Object* menu.


Dr to James Mitchell Ltd.
High Class Family Grocers
27 High Street, Ashton Marlow, Kent. AS5 2BQ
Telephone 043 23871
...../...../ 19.....
Deliveries to your door.

The completed invoice for James Mitchell Ltd.

Let us take as an example the design of an invoice for a small private business. Assuming we wish to print two on A4 sheets, the first requirement is to create a page in landscape position having two text frames, 12mm margins all round and 24mm gutter between the two frames. The bottom margin could be wider if you wish, say 20mm. If you constructed the A5 letter heading described in RISC User 6:3 you may already have such a Style Sheet prepared. The two frames are 124.5mm wide and 183mm high.

We require another text frame at the top of the left frame, size 124.5mm wide and 50mm deep; but since this frame must have a border 0.25mm wide, this has to be allowed for. Therefore draw the frame slightly too small. From the *Frame Border* option in the *Object* menu, add a single line border 0.25mm thick. Now modify the frame to be exactly 124.5mm wide and 50mm deep. This positions it correctly at the top of the empty frame (allowing for borders was described in more detail in RISC User 6:5). A second text frame is required below this one which will be 124.5mm wide by 133mm high. It too requires a 0.25mm border. When finished, check that all is well by selecting *Hide Guidelines* in the *View* menu and you should be able to see the two frames with borders exactly aligned with each other.



Ovation's Modify Line dialogue box

Create a set of paragraph styles for your text. In the example, the firm's name is 36pt Chaucer, the line below it is 14pt Trinity Bold with an 8pt "Space Before" (set in the *Format* menu - this gives a better balance between the two lines of type). The address is 12pt Trinity, and the last line is slightly smaller in 10pt.

Activate the lower frame, highlight the line tool, press Shift and draw a vertical line about 10mm from the left. All the lines in this example are drawn whilst holding down Shift key which forces them to be either vertical or horizontal. In the *Object* menu the option has changed to *Modify Line* and by selecting this you can edit the line both in position and style.

A thickness of 0.25mm will be fine. Once again the type of printer you use will affect the output - some dot matrix printers will not be able to vary the line thickness to any great extent, whilst lasers and bubble jets can adjust the line thickness within finer limits.

Repeat the process to draw the other two lines for the cash column on the right. Now draw the first of the horizontal lines. From the *Modify Line* box make it, say, 0.15mm thick and select the fine dots option. Once it is in place and still active, from the *Object* menu select *Duplicate Line*. In the dialogue box enter: 10 times, Vertical offset = 10mm, Horizontal offset = 0mm. Make sure these values are correct since you can only amend one line at a time and if you have duplicated many wrong ones, this could be rather tedious! If you do get into a tangle, since the lines are drawn within a text frame, you can delete this frame and make a fresh start.

If all is well you will get a set of parallel dotted lines across the page. To complete the invoice draw the three short lines for the totals at the bottom of the cash column. We now make use of the paste and copy options in the *Object* menu, (first described in RISC User 6:3) to copy the whole invoice across to the blank frame on the other half of the document page.

Activate the Title frame and from the *Object* menu select *Copy Frame*. Move across to the blank frame, activate it and select *Paste Frame*. A duplicate of the original will appear near the centre of the screen. With this copy active hold down the Adjust button and slide the frame to its correct position at the top of the blank page. In a similar manner, copy and paste the lower part of the invoice, and slide this into position below the other. You now have two identical copies of the Invoice on a landscape A4 sheet. Select *Hide Guidelines* and check that the two are correct in every respect. Highlight *Landscape* in the *Print Set Up* box, and proceed with printing.

DOCUMENTS WITH LINES AND TEXT

The techniques outlined above can be applied to scores of documents where lines and frames are an integral part of the design. My teacher friends make use of these in such things as class lists. In the example below the original is on an A4 sheet with about 30 names but the diagram is not to scale. There is an important point to note here where the line spacing has to match the spacing of the names. Type in the first name and draw a line under it which you judge will position the name correctly with respect to the lines.

Modify this line to dotted if preferred, then duplicate it using points, not millimetres. For example, if you are using 10pt text, then allowing for double spacing and 20% leading, the lines must be duplicated with a vertical offset of 24pt. By using text frame overlays it is possible to flow the names in from a suitable database. I hope to consider this possibility in a future article.

Monsdale Secondary School
1992 - 93
Form 3R
Form Master: Mr. J.C. Wilson.

Derby T.S.						
Gregory J.						
Jackson A.						
Kalma S.S.						
Mortimer E.						
Patel H.						
Qereshi K.						
Singh A.A.						
Trotter D.W.						

The completed form list for Monsdale Secondary School

MANIPULATING LINES

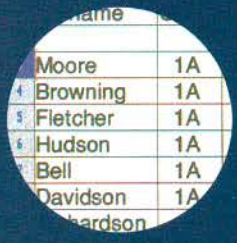
There are a couple of final points to make. One is that lines, like frames, can be adjusted on screen using the mouse pointer. The line must be active i.e. the two tiny red squares, one at each end, must be visible. Pointing to either of these allows the line to be lengthened, shortened, or rotated. Hold down Adjust and the line can be dragged to any position on the page. Hold down Shift at the same time and the movement is confined to the vertical or horizontal.

Furthermore, for really precise results, use the 200% view (or more). At this magnification you'd be surprised how ragged otherwise perfect looking linework can be, and this is the ideal scale at which to ensure that lines all meet and terminate neatly.

COLTON software

Coltonsoft Limited
2 Signet Court
Swanns Road
Cambridge
CB5 8LA
Tel: (0223) 311881
Fax: (0223) 312010

PIPEDREAM 4



PipeDream 4 word processing. Flexible word processing using fonts and pictures for stunning presentation, a 93,000 word spelling checker and user dictionaries for letter-perfect writing.

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Address _____

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_____ Postcode _____

The Prime of Educational Word Processing

Mark Sealey looks at PrimeWord, the most recent in a flurry of word processors for education.

PrimeWord is the latest release from Minerva in a group of products aimed at the lower age ranges of the educational market. However, its features, ease of use and price give it a more general appeal as well. It is of real interest to anyone considering upgrading or buying an application to process text and graphics, maybe for the first time.

Despite, or perhaps because of, the sophisticated display capabilities of Acorn's 32-bit range, there have been many attempts to design software that does the sort of jobs that PrimeWord does: Edit, 1st Word Plus, Protext, Pendown (Plus), PipeDream, Wordz, DeskEdit, the desktop publishing (DTP) packages like Impression and Ovation, and the StartWrite, EasiWriter, TechWriter range from Icon Technology with their distinctive approach to styles and structure.

It will be obvious to anyone even vaguely familiar with the development of these products that the trend has been towards merging the functions of DTP and straight text processing. PrimeWord has achieved this merger every bit as well as the competition and, given its limited scope, better than most.

The package also follows, very successfully, a less obvious though equally important trend in such software for non-specialist, novice and younger users: the provision of features on an incremental basis. More of this and PrimeWord's other distinctions later.

THE PACKAGE

PrimeWord is supplied on a single disc, with example files for use with the excellent manual's tutorial section. It is fully RISC OS and Desktop compliant, and loads quickly onto the icon bar after an eye-catching header panel (a la Impression II). This gives a momentary foretaste of the stylish design of the user interface which PrimeWord employs (see figure 1).

Like Wordz and StartWrite, PrimeWord handles text and integrated graphics, and is fully WYSIWYG allowing multiple views of the same document. It can support as many documents open at once as any user is ever likely to need. ASCII text can be imported and exported too.

The PrimeWord window has a document area, a vertical and a horizontal ruler, and a button bar across the top containing easily distinguished (optionally 3D) icons for the most common operations. There are no tool boxes to hide behind or get in the way. But unlike other products, what appears in this window can be very easily customised to suit your preferences.

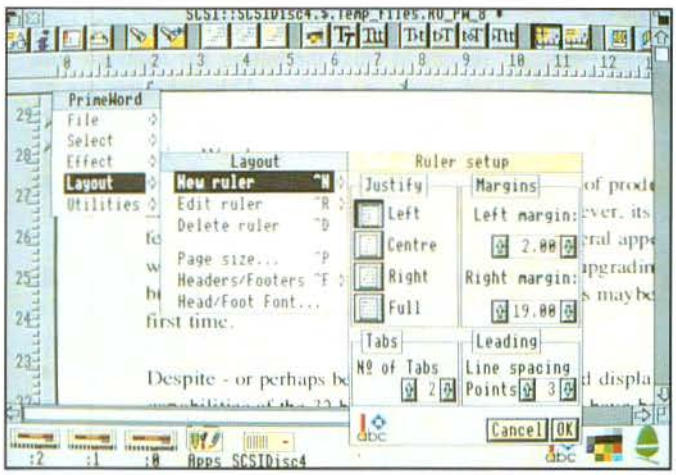


Figure 1 PrimeWord user interface

The icon bar menu yields only Info, Quit and Preferences, which is concerned with set-up and customisation.

USING PRIMEWORD

Clicking Select over the PrimeWord icon opens a new and as yet untitled document. Alternatively, the application itself can also be started by clicking on an existing document's icon.

There are three menus. Over the document area a main menu controls file operations (print, save etc.), text selections and effects, layout, and a group of utilities (spelling, movement around the document, sizing, control of graphics and so on).

At the top of the page there is a ruler menu to control the ruler itself and associated tabs. These are simple and their effects instantaneous.

SCSI::SCSIDisc4.$.Temp_files.Hel_Kat_0
It will be exiting going to Hawesend. We are going to do lots of good activities there. When we get there we are going to have our dinner, and then we are going orienteering. The next day we are going on a mountain walk all day. Me, Katie and my best friend, Helen are sharing a bunk bed.
On Wednesday morning we are doing a jigsaw, and in the afternoon we are going on a ghyll climb. On Friday the day we go home (oh

Figure 2 Using rulers to run text round a graphic

Over the button bar, a third menu provides a resume of what the button bar icons do, and sub-menus go further. Although there are no permanent graphic borders, the whereabouts of the mouse's pointer is detected automatically, making manipulation of graphics alongside text intuitive and flexible.

Some measure of flow around graphics can easily be achieved by using more than one ruler, 1st Word Plus fashion. Text automatically obeys whichever margin and tab settings are in force as you move through a document.

For example, there are two rulers in figure 2: one setting the left-hand margin at the top (half way across the page and hence forcing text to the right of the graphic). The next ruler, underneath the map of Great Britain, allows text to stretch across the entire page width. Had the half-width ruler at the top had its left-hand margin fully flush with the left of the page, some of the text would have occupied the same space as the map.

There are several ways to exploit this state of affairs, lending a most stylish feel to the page. The text that would be partially hidden by the graphic could be selected and its colour altered either to the same colour as the graphic, if you wanted to hide it altogether, or to a complementary shade to make it stand out over the graphic. This can be achieved either from the menu, button bar, or by pressing Ctrl-F3. Again, flexibility is the key. In fact, once you are used to it. PrimeWord handles text and graphics both singly and in combination (though there is no concept of graphics repelling text) as intuitively and naturally as any piece of currently available software.

THE LIMITS OF PRIMEWORD

Of course no one would expect to use PrimeWord to write a book, nor to handle complex mathematical equations, tables or heavily indexed material. There is no autosave, undo or checking before overwriting a file, text cannot appear in multiple columns, and files containing graphics are correspondingly large. These are all intentional decisions reflecting the designers' assumptions about the product's likely users. When set against what else PrimeWord has to offer, they are by and large defensible decisions.

Much thought has clearly gone into making PrimeWord straightforward to use for those new to text processing without sacrificing features. For example, if a printer driver is loaded, the paper limits are automatically visible. Document view sizes are controlled in terms of *small, medium* and *large* rather than as potentially confusing percentages.

TEXT EFFECTS

Once pupils have got used to the basics of entering and editing text, finding, replacing and block manoeuvres (not a lengthy process), there are three text effects that are instantly available. These are underline, super and subscript together with four case-change possibilities, and are easy to use. Fonts can additionally be selected by a writable icon in those cases where you know which font you want, without having to wait for those available to be cached.

The dictionary can work either as you type or retrospectively on a whole document. Then it is

updated in real time, Wordz fashion, making intelligent guesses as you go along.

PREFERENCES

Undoubtedly the most innovative feature of PrimeWord, though, is the way it can grow as you do. Very young or inexperienced users could be presented with little more than a blank screen to use as a typewriter, with no main menu and just the print and maybe text colour icons available on the button bar. As further features are needed, they can be introduced. All of this is password protected.

From the *Preferences* menu a separate 'bar' utility (figure 3) allows icons to be dragged off a fully scrolling graphical representation of the main program's button bar to remove them from use. Alternatively, they can be dropped back in from a permanent pool to (re)introduce them. What is more the icons can be spaced and sequenced differently from the default set-up, and even duplicated, perhaps for those uncomfortable with the mouse, or for some disabled users who have difficulty clicking on an icon accurately.

Each such resulting set-up is saved into a text file on disc. A number of different renamable files (or discs) reflecting, say, the differing needs of several members of a class could thus be kept and maintained by a teacher.

This is a vast improvement over the way Pendown does this and, although Colton Software and Icon Technology have plans to do something similar in Wordz and StartWrite, these are not yet ready. Indeed, it is the best such arrangement available with any comparable software.

CONCLUSIONS

The designers of PrimeWord have set themselves clear objectives, thought carefully about those features to be included and those to be left out, and then gone all out to make the package achieve everything that was intended in as accessible a way as possible. Frills are few; features just the right number. Above all, what you can do is easy to learn and remember.

There are three main rivals to PrimeWord for young users and novices: StartWrite, Wordz and Pendown. The latter (reviewed in RISC User 5:10) broke new ground and was the first of its kind. It has limitations - only one document at a time, an operational interface which is not so straightforward as that of the other products, and the way that graphics are handled.

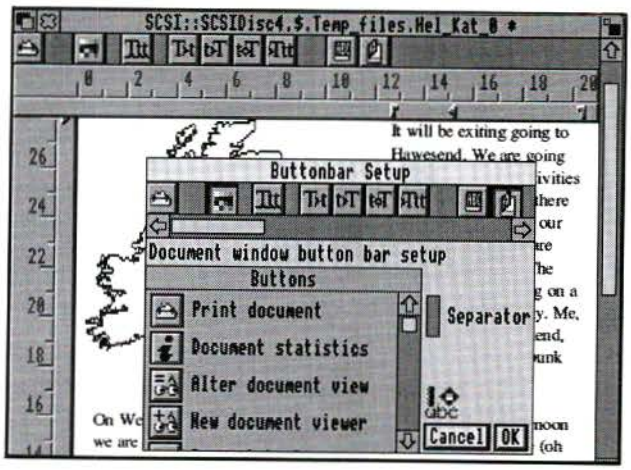


Figure 3 Editing the layout of the button bar

If you need tables, styles and integral data linking with the Resultz spreadsheet and the projected database, then go for Wordz. If you need utter simplicity with far fewer features but compatibility with the outstanding EasiWriter and TechWriter, then go for StartWrite.

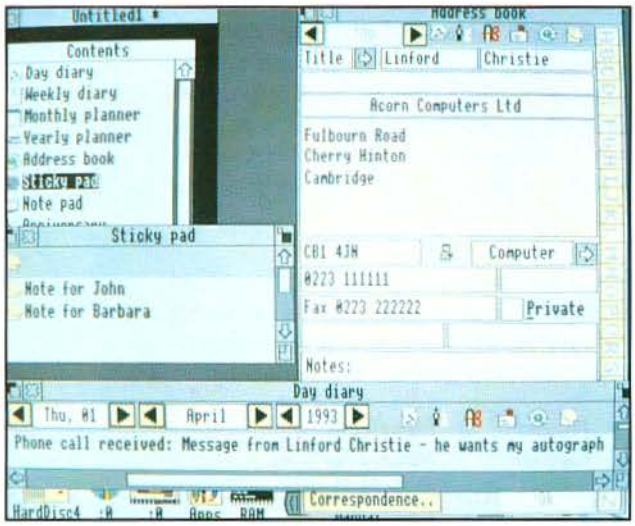
If you need to be able to customise your word processor, though, and want a very convincing balance between effects and accessibility, PrimeWord has a great deal to recommend it.

Product	*PrimeWord*
Supplier	*Minerva Software* *Minerva House,* *Baring Crescent,* *Exeter, Devon EX1 1TL.* *Tel. 0392 437756* *Fax 0392 421762*
Prices	*£70.44 inc. VAT and p&p* *£105.75 inc. VAT and p&p* *(Primary site licence)* *£282.00 inc. VAT and p&p* *(Secondary site licence)*

Organise Yourself

Alan Wrigley looks at Stallion Software's Almanac.

Almanac sets out to be a personal organiser - a kind of computerised diary, address book, notepad etc. all rolled into one and linked together. It is a complex piece of software, and as such there is a lot to get to grips with if you are to make use of it fully. The copy I had for review was described as a development version, and the manual was not intended to be the final product. I have been told by Stallion Software that the manual to be issued with production versions of the software will be much more comprehensive, so I am unable to pass comment on it at this stage.



Almanac in use on the Desktop

USING ALMANAC

Almanac is built around its Contents window which is opened from the icon bar, and which offers easy access to nine functions: daily and weekly diaries, monthly and yearly planners, address book, sticky pad, anniversary, correspondence and "to do". There will also be a notepad function in the second release of the software. Each of these functions has its own display window, and most of them also have a record window into which you can enter details of the item (anniversary, phone call received etc.) to be recorded, which is then logged in abbreviated form in the function's main window and on the diary. One of the important features of Almanac is the interaction between the various functions which allows you to link records in one with records in another. For example, an address book record can be linked to correspondence or anniversary records, so that the linked items can be displayed directly from the address book window.

ADDRESS BOOK

Opening the address book displays a window into which you can enter details. The window is quite large (as are many of Almanac's windows) and you can't resize it. Each record can hold additional information as well as address and phone number, but at first I got a shock when I started entering data. Each field has a default content string ("First name", "Telephone number" etc.). This isn't a bad idea to start a file off, but the default strings were re-displayed for each new record, meaning that I had to delete text from up to 12 icons before I could start typing each address. However, Stallion informs me that the production version will have a *Clear* icon enabling you to clear all text from a record before starting to fill it in.

A neat idea is an alphabet along one side of the window (though the letters are rotated by 90 degrees) so that you can click Menu on, say, M and choose from a list of all records whose surname begins with M. A *Save* option for the address book on its own would have been nice, and Stallion assures me that this will be implemented in release 2.

CORRESPONDENCE AND DIARY

The correspondence option allows you to keep track of letters, phone calls etc., by storing a record which holds details of the date and time, the recipient, category, and space for short notes. A nice touch is the ability to link the correspondence record to a filename, and the file can then be run at any time directly from the Almanac window. All correspondence is entered automatically in the diary (as are anniversary records and "to do" items); thus opening the daily or weekly diary will show any items for that date in the window. Unfortunately the weekly diary is larger than the screen so you have to scroll it - it would have been nice to see

an entire week at a glance (though of course you can use modes 35 or 39 to do so).

The diary can also be used on its own to record reminders, events etc. A useful feature is that if the diary window gets cluttered you can choose to filter out some categories from the display. Filters can be of either the *include* or the *exclude* variety - for example, you can choose to see all your entries that refer to sport, or all that don't.

OTHER FUNCTIONS

The anniversary function, as you might expect, allows you to store details of anniversaries, while the "to do" function allows you to store details of jobs that have to be done at a specific time. Both these types of record, as indeed with any other Almanac records, can be allocated a category (Bills, Entertainment, Travel etc.), each of which is illustrated by a little sprite which gives you a pictorial representation of the category at a glance. There are 77 categories built in, but no facility within the program itself to define your own. However, it is possible to do so by a rather circuitous route - the list of categories used at start-up is in fact taken from the sprite file which holds the category sprites, so by defining your own sprites you can add to the list of categories recognised.

Most users would expect the software to warn you when an anniversary or other important date is approaching. Almanac only warns you of a current or impending date when you access the diary, anniversary or "to do" functions. I would have liked to see a warning given when you install the application, in a similar way to Acorn's Alarm; this is promised for a future release.

The sticky pad function is provided to enable you to leave notes for other users or for yourself in a similar way to post-it notes. Once a sticky record is open, you might imagine that you could just type some text into the window and that would be that. In fact, all it can do on the version I have is to hold filenames, so your sticky note would actually be an Edit file or similar which would have to be created separately from another application. Stallion tells me that it will be possible to drag other events from Almanac into a sticky record, the idea being that when the notepad function is included, notes can be left without resorting to other applications.

LINKING

The link facility and the integration between different parts of the software are really good ideas, and mean that in practice you can access almost anything in Almanac from anywhere else. Linking items together allows you, for example, to have a record in the address book linked to a number of correspondence records which relate to that addressee, as well as perhaps anniversary records. All these linked records can be accessed directly from the address book window when the relevant address record is open.

UPGRADES

I have mentioned in a few places that Stallion plans a second release of Almanac before too long, to include features missing from the first. My understanding is that this will be available to all users as a free upgrade. A further major new upgrade is planned for release in about a year's time, but this will not be free.

CONCLUSIONS

I found a number of bugs in the development version, but I am assured by Stallion that these have been cured, or will be before Almanac goes on sale. Among the functions I was unable to test because of bugs was saving an Almanac file to disc. A serious omission from the program in my view is any kind of print option. Stallion says that a future release will include a separate application that, among other things, will enable you to print out information in Filofax page format. This should be extremely useful, but it is unlikely to appear in release 2.

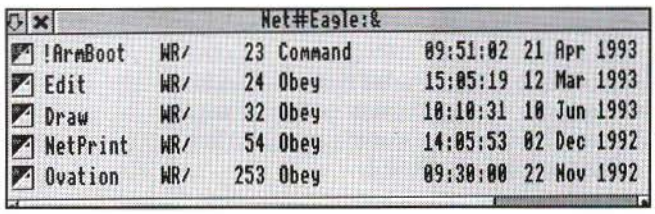
Overall, I can't quite make up my mind whether Almanac is attempting to do too much. Acorn is, of course, keen to push its computers into the small office market, and to that end it needs a range of software available which will appeal to the business-minded user. While the concept of Almanac is interesting, it is essential that software of this kind attains a high level of professionalism to make it acceptable to the people who are most likely to use it. Stallion seems to be receptive to feedback from users and potential users, and I have no doubt that the range of facilities will expand as time goes on. If you are thinking of buying Almanac, my recommendation is that you try it out thoroughly at a dealer to see whether it suits your method of working, and to satisfy yourself that the facilities you need are included.

Product *Almanac*
Supplier *Stallion Software Ltd.*
Arundel House, Arundel
Road, Camden,
Bath BA1 5JX.
Tel. 0225 339090

Managing Econet - A School Approach

In the first of two articles in our education feature, Fred Grieve discusses his experiences in managing an Econet system within a school environment.

I manage a modest Econet network of some 25 A3000 microcomputers. I upgraded my network software from Level 3 to Level 4, and after using the new software for several months, I became aware of the fact that Level 4 provided an excellent means of solving two long-standing problems associated with my Econet system.


Net#Eagle:&
!ArmBoot WR/ 23 Command 09:51:02 21 Apr 1993
Edit WR/ 24 Obey 15:05:19 12 Mar 1993
Draw WR/ 32 Obey 10:10:31 10 Jun 1993
NetPrint WR/ 54 Obey 14:05:53 02 Dec 1992
Ovation WR/ 253 Obey 09:30:00 22 Nov 1992

System Manager's view of typical file server root directory

When I first started to manage my present Econet system, one of the problems I encountered was that applications software was being duplicated in several directories on the file server's hard disc. For example, if a class were using 1st Word Plus, I would place a copy in their user root directory (URD). With the advent of large Archimedes applications, it became patently obvious that the 60Mb of hard disc storage used by the file server needed to be more efficiently managed.

The other problem was that there was nothing, except excellent teacher vigilance, to stop any pupil copying an application from their network URD onto floppy disc. For the same reason, placing any application in a "public" area on the network is asking for trouble.

I have now remedied both of these shortcomings by using quite a number of Obey files and feel that other network managers may benefit from my experiences.

NETWORK STRUCTURE

1. Station Configuration

Every new machine I receive is configured as follows:

```
*CONFIGURE Filesystem Adfs
*CONFIGURE FS Eagle
*CONFIGURE PS Epson
*CONFIGURE Boot
```

This configures the default filing system to be ADFS so that the Boot option will work on floppy disc. FS sets the name of the default file server *(Eagle)* and PS does likewise for the default printer server *(Epson)*.

The only other item to be configured is the station number. By default, this is set to 1. If there is already a station 1 on a network and a second station 1 is plugged in, one of these machines will not be recognised by the file server, so I strongly suggest that station 1 is never used on any Econet network. The software for configuring the station number is supplied on the Level 4 support disc and must be run from the command line, after pressing F12 from the Desktop first. Alternatively, it can be copied to the system manager's own directory and used from there. If you are ever in any doubt as to the station number setting of a machine, enter:

```
*HELP STATION
```

at the command line and this will display the current setting.

2. Network Users

I decided from the early days of Level 3 to create group users for ease of management. Time has proved this to be a wise decision. As Econet doesn't permit the use of an all digit user identity or any identity beginning with a digit, I was forced to use S1, S2 .... S6 for my groups. Within each group, I allocate the user name as the pupil surname as far as possible. However, it may well be that there are four Smiths, for example, within a group. If this is so, then I use SmithA, SmithR and so on.

I now use DeskEdit2 for compiling department class lists anyway, and this provides an excellent short-cut when creating lots of new users at the beginning of a new session. It is simply a matter of modifying any class list by appending the group user identity and then dragging the text file of class names into the Manager application to create groups of users. For example:

```
Class List              Group User File

Allan George            S3.Allan
.....                   .....
Robertson Alison        S3.RobertsonA
Robertson Elizabeth     S3.RobertsonE
```

All my users within groups have their access privilege set to *Normal* and their boot option set to *Run*.

In addition to these, I have created some *Locked* privilege users such as Draw, Paint, Edit and so on. This permits any pupil who isn't a network user to access the network in order to use applications. This is happening more and more as cross-curricular needs dictate.

I have also created a special user on my network called *Boot*. When Shift-Break is pressed, the station is logged on and downloads the *Broadcast Loader* software (see next month) before being logged off again.

3. Applications

All my applications are placed in their own directories within the root directory (S) of my file server hard drive (see figure 1). As can be seen above, I have put the actual application within each of these directories.

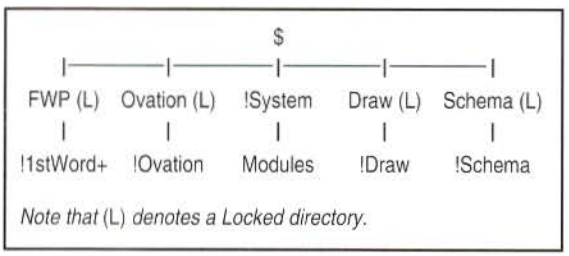


Figure 1.
Typical file server directory structure

It is vitally important to set the user access of these directories and files correctly otherwise users will be denied access to these applications. The only directories in the root directory of my file server which are not locked are !System and ArthurLIB. Any directory which contains applications software is locked as, if the hidden directory option on the file server software is set by the system manager, then any Normal user opening the root directory will not see any directory which is locked. This stops innocent prying, malicious meddling and most forms of electronic vandalism! As a general rule, all files within an application directory should have R/r access - public read only access. Be careful not to lock these files because if you do, Normal privilege users may not be able to access them.

USING APPLICATIONS

As every user on my network has their boot option set to *Run*, every user directory must contain a file called !ArmBoot otherwise an error message will be generated every time a user logs on to the network.

All my !ArmBoot files are Command files and look like this:

```
|!ArmBoot for Econet
|
Net
|DeskTop -F Startup
|Filer_CloseDir net#Eagle:&
```

It is always a good idea to include the Net command at the beginning of any network specific Command or Obey files because it is remarkable how many disc-based applications set the current filing system to ADFS and do not reset it when finished.

The last two lines of this file need some further explanation. If I want the log-on process to start an application such as Draw automatically, I copy the Draw Obey file into the user directory and rename it *Startup*. Removing the vertical bar character from the penultimate line of !ArmBoot ensures Draw loads when the user logs on.

If it is desirable for the URD window to close immediately a pupil logs on, then the vertical bar character must be removed from the last line of !ArmBoot as well.

APPLICATION OBEY FILES

I have created a library of application Obey files which permit users access to all my network software. As no single user needs access to every piece of software on the network, I copy these to group users as and when the curriculum dictates. To make this task as easy as possible, I have written a bulk file copier which allows me to go on with other jobs whilst all this file copying is being done.

A typical user may have access to several Obey files at any one time. For example:

```
S1.Smith

"

!ArmBoot
Edit
Draw
NetPrint
```

My Obey file for running Cambridge Pascal looks like this. It is called *Pascal* and as already stated, this file can be renamed to *Startup* when copied to a user directory in order to automate the loading of the Draw application.

```
|Obey file for Cambridge Pascal on
Econet
|
Run net:$.!System
Run net:$.Pascal.!Pascal
```

Warning: Setting any application path to Net:$ is fine if you only have one file server. I have two, called Eagle and Hawk, so it is preferable to use the file server name to make sure everything works as it should. For example, I would normally use:

```
Run Net#Eagle:$.!System
```

which sets the !System path to the file server called Eagle.

NETWORK PRINTING

Using the same method as above, it is possible to allow any user to download a network printer driver by creating an Obey file for this purpose.

```
|Obey file for NetPrint
|
Run Net:$.!System
Run Net:$.PDrivers.!PrintDM
```

Remember that the printer driver software will need to be run once by the System Manager and the driver output changed to Econet. If your network has more than one printer server, then the main printer server name should be entered in the dialogue box to the right of Econet. This setting should then be saved as the default.

I have two printer servers called Epson and Star. Both are actually locked users. When either printer server is logged on to the network, a 1500K RAM disc is created on that station and the printer driver copied into it using an Obey file. Running the driver from RAM means that the file spooling is also done in RAM. This speeds up network printing considerably. The only drawback to this method is when classes are using DTP and incorporate graphics into their pages. 1500K is insufficient to cope with lots of files of this type.

Once the printer server software is loaded, the station can then be logged off the network. It will still act as a printer server.

By default, when any of my users double-clicks on the *NetPrint* Obey file, the printer driver will be set to Epson. Should they wish to access the Star printer, all that is necessary is to press F12 from the Desktop and then type:

```
PS STAR <CR><CR>.
```

Next month, Fred Grieve will conclude his discussions of Econet management. If other readers wish to add to what Fred has to say, or would like to suggest alternative Econet strategies then please let us know.

Book Reviews (continued from page 31)

publishers, uses excessive white space, leading to too many pages in total. In addition, there are a surprising number of typographical and layout errors. However, these are more than compensated for by the quality of the writing.

CONCLUSIONS

This book is highly recommended for new users. Old hands may find it of less use having gained the knowledge through sheer perseverance, but even they will learn a few tricks. In its pages are to be found a wealth of hints and tips, well-organised and in a lucid style. If you are having difficulty understanding the more powerful and complex features of Impression, especially if you are a new user, go out and buy it now! I cannot recommend it more.

Both books are priced at £14.95 and published by Dabs Press Publishing, FREEPOST(PR1327), Leyland, Preston PR5 3BR, tel. 0772 623000, fax 0772 622917. Available from bookshops and Acorn dealers.

The PC Emulator Survival Guide (Part 4)

by Gordon Gilmore

Once used to the Wimp environment, life on the command line is not very comfortable. Even so, it is noticeable that whenever an experienced PC user needs to sort out problems he quits Windows and heads for the relative certainty of the the command line. Expert or not, any help we can get from DOS itself is welcome. That is the subject of this month's guide.

On the basis that five minutes' practical work is worth pages of printed text this chapter of the guide is unashamedly practical. It would be a good idea for you to load up the Emulator and follow the article step by step. If you have been following the suggestions in previous parts of this guide you should end up in the COMMON directory ready to go. We shall look first of all at some of the special keys available to make life easy. We'll use the DIR list command as an example:

```
DIR \DOS
```

You will find that the directory list runs off the bottom of the screen and the screen scrolls up to accommodate the extra lines. Not very convenient if the file you wanted to see is at the very top. Press F3. If you haven't done anything else at the keyboard since asking for the first directory listing DOS should repeat the last command for you. Poise your left hand ready to press Ctrl-S and press Return with your right. When you want the listing to pause press Ctrl-S and it will pause, press it again and it will continue. This is useful in that it is similar to the use of Ctrl and Ctrl-Shift keys to pause a listing at the RISC OS command line. If you look at your Break key you will find Pause engraved on the front, This key can also be used to pause a listing in just the same way as Ctrl-S. Using Pause you have to press a different key to make the listing continue.

In fact, the DIR command has built in options to help. '/W' added to the end of the DIR command will result in a listing of just the filenames, without size and date information, five files to a line.

We can use DOS's editing facilities to save typing. Press F3 again, add ' /W' to the end of the command (note the space) and press Return. If you didn't get DIR \DOS typed for you then you will have to type the full command line:

```
DIR \DOS /W
```

This "wide" directory display is much more readable though of course the complete file information is not available.

Press F3 again, remove the final W by pressing the Backspace key (to the right of the '£' key) and replace it with P (for Pause) giving the complete instruction:

```
DIR \DOS /P
```

Now when the screen is full DOS will pause, giving the message Strike a key when ready . . ..

PC Emulator (EGA CD 256K)
C:\COMMON>DIR \DOS /W
Volume in drive C is PC_Hard
Directory of C:\DOS
. .. RAMDRIVE SYS
ASSIGN COM ATTRIB EXE BACKUP COM
COUNTRY SYS DEBUG COM DISKCOMP COM
DRIVER SYS EDLIN COM FASTOPEN EXE
FORMAT COM GRAFTABL COM GRAPHICS COM
KEYBOARD SYS LABEL COM MODE COM
PRINT COM PRINTER SYS RECOVER COM
SELECT COM SHARE EXE SORT EXE
TREE COM VDISK SYS XCOPY EXE
4201 CPI 5202 CPI
47 File(s) 2465792 bytes free
C:\COMMON>_

'Wide' directory listing

A more general way we can pause our listing, valid for any text output to the screen, is to use the MORE program. MORE.COM lives in the DOS directory and is used as a 'pipelined' command to pause screen output.

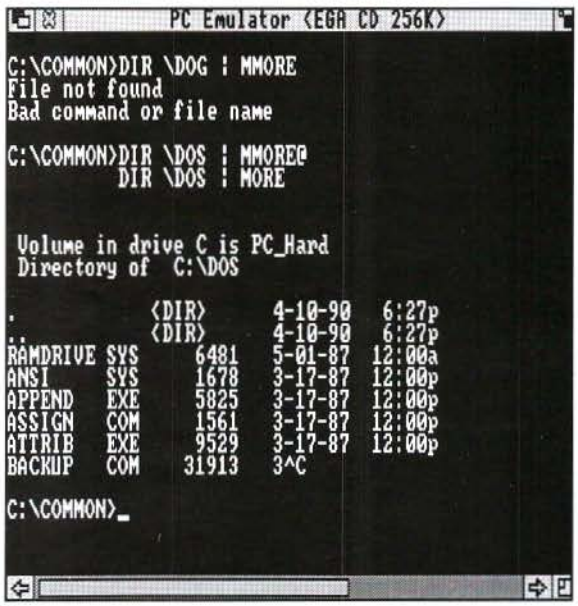
Press F3 again, get rid of '/P', and this time add to the end of the re-typed line ' | MORE'. In full:

```
DIR \DOS | MORE
```

Again the listing will pause but this time with the message — More —

The '|' symbol is the pipeline command which, in this case, means take the output from the DIR command and present it as the input to the MORE command. MORE, in DOS terminology, is a filter. You might like to try the Ctrl-S pause and paged screen output using MORE on the output from the TYPE command. Use the following command to create a convenient text file:

```
DIR \DOS > DIR.TXT
```


PC Emulator (EGA CD 256K)
C:\COMMON>DIR \DOG | MMORE
File not found
Bad command or file name
C:\COMMON>DIR \DOS | MMORE@
DIR \DOS | MORE
Volume in drive C is PC_Hard
Directory of C:\DOS
. <DIR> 4-10-90 6:27p
.. <DIR> 4-10-90 6:27p
RAMDRIVE SYS 6481 5-01-87 12:00a
ANSI SYS 1678 3-17-87 12:00p
APPEND EXE 5825 3-17-87 12:00p
ASSIGN COM 1561 3-17-87 12:00p
ATTRIB EXE 9529 3-17-87 12:00p
BACKUP COM 31913 3^C
C:\COMMON>

An example of command line editing

The '>' is another pipeline command which means send the output from the DIR command to a file called DIR.TXT. Little should happen apart from a muted chuckle from your hard disc as the directory listing is sent not to the screen but to the disk file DIR.TXT. You can now try Ctrl-S and MORE on the following command:

```
TYPE DIR.TXT | MORE
```

I imagine that by now you have become bored watching the DOS directory zipping past your eyes at high speed? No need! At any time you can press Ctrl-Break to terminate the command. This is a general DOS command terminator which can be used whenever the DOS is outputting data or waiting for external input. But beware! If you are multi-tasking the Emulator, think twice before pressing Ctrl-Break. Unless the Emulator window has the input focus (light yellow bar at the top) then RISC OS will dutifully reset the whole machine!

When you terminate a DOS command with Ctrl-Break the characters '^C', meaning Ctrl-C, will appear on the screen. In fact Ctrl-C can be used instead of Ctrl-Break and perhaps that would be a safer option if you intend to multi-task with RISC OS.

HARDCOPY OUTPUT

What about sending output to the printer? Make sure your printer is switched on and on-line (and plugged in!) and press Ctrl-P. No driver needs to be installed. Now type anything at the keyboard. We've re-invented the typewriter! Everything typed at the keyboard is echoed to the printer, but only while under DOS (as opposed to RISC OS) control. Try the DIR \DOS command again. Switch off the printer echo mode by pressing Ctrl-P again.

So, you may ask, What is the use of the 'Print' key on the keyboard? Press it and see. What happens is that the current screen contents are copied out to the printer. The 'Print' key can be used at any time, even within a non-DOS program but will only print the text on the screen. Any graphics on the screen will be ignored. This can be altered by including the line '\DOS\GRAPHICS' in the AUTOEXEC.BAT file to allow graphical screen images to be sent bit mapped to the printer.

COMMAND LINE EDITING KEYS

A page or so back I introduced the F3 key as a short-cut to re-typing a command. In fact all the function keys from F1 to F6 have useful command line editing functions. These editing keys take the last line typed and store it as a template to from which we can create a new line.

To get a 'feel' for how the function keys operate, type this incorrect command:

```
DIR \DOG | MMORE
```

When you press Return, unless you happen to have created a directory called DOG, you will get two error messages - 'File not found' and 'Bad command or file name'. Let's put this right. (Perhaps I should forewarn you that if you are not following this at the keyboard the next few paragraphs will be particularly opaque.) Press F1. The single

letter D should appear. Keep pressing F1 (or its equivalent, the right cursor key) and the letters of the last command will appear in turn. When you get to the first 'O' press 'S' and then F3. The rest of the command will appear. Pressing return now would still leave a problem because we don't have a program called MMORE.

Press Backspace until you reach either 'M' in MMORE and then press Delete to invisibly remove an M from the template. Press F3 and we will have the complete correct command:

```
DIR \DOS | MORE
```

We can even streamline that process. Re-type the original incorrect command DIR \DOG |MMORE. Press Return and ignore the error message again. Now press F2. Nothing happens. Press G. The previous command up to, but not including, the letter G appears. Type S, press F2 followed by M and all the letters up to the space appear. Press Delete and F3 and again we have the complete correct command.

Supposing we had left out a letter:

```
DIR DOS | MORE
```

but had not yet pressed Return. We could use the Backspace key to backtrack to the point at which we need to insert the '\'. A neater procedure is to use F5 to copy the current line exactly as is stands into the template for further editing. An '@' sign appears and the cursor moves to just below the 'D'. Now press F2 and 'D' to repeat the beginning of the line. Press Insert to tell the line editor to make room and type the missing '\'. F3 will complete the command. After pressing Insert, characters are taken from the keyboard rather than the template until an 'F' key or Delete is used. If you are working on the command line a lot these editing keys are a godsend and I do recommend you become familiar with them. It is surprising how many experienced DOS users are not aware they exist.

Unfortunately only the last command typed can be recalled. There are a number of utility programs available to fill this gap, and in fact DOS 5 contains a command history facility called DOSKEY.

It is worthwhile keeping a lookout for shareware and public domain programs of this nature.

Finally - would you like to bring some colour into your DOS prompt? Try typing the following command in lower case:

```
prompt $e[31;44;1m$p$g$e[33;44;1m
```

Now type CLS. Full explanation next time but for all those impatient souls this is the reason we put the ANSI.SYS device into the CONFIG.SYS file. Next time we will look at the wonderful world of EDLIN and create a few useful batch files.

Overall control

Ctrl-Alt-Del	Warm re-boot
Ctrl-Break or Ctrl-C	Stop a program or command

Screen output control

/W	Wide directory listing (Only with DIR)
/P	Paged directory listing (Only with DIR)
Ctrl-S or Pause	Pause any screen output
| MORE	Paged screen output

Printer control

Ctrl-P	Toggle screen output to printer
Print key	Copy current screen to printer

Command line keyboard input control

esc	Cancel current line
Backspace or Left-arrow	Remove last character
Delete	Remove current character from template
Insert	Allow insertion of characters
F1 or Right-arrow arrow	Copy current character from template
F2 + C	Copy from template up to, but not including, character C
F3	Copy whole of template to command line
F4 + C	Ignores the template up to, but not including, character C
F5	Copies the new line to the template

A summary of DOS command-line functions

HINTS & TIPS

Keep sending in your hints on anything relevant to the Archimedes range. And remember, we pay for every hint we publish.

RISC OS 3.10 DESKTOP SHUTDOWN BUG

Tony Shew

Pressing Ctrl-Shift-F12 to shut down the Desktop will sometimes cause the computer to hang. This can be caused by two or more loaded applications having extra lines in their !Run files following the line that executes !RunImage. These may be comments such as:

```
|End of file
```

or they may be commands such as RMKill to kill certain modules connected with the application when the application is quit. RISC OS 3 is able to cope with only one !Run file like this, so if your computer hangs during shutdown, it's worth checking the !Run files of applications active at the time of shutdown. If the lines are commands, these programs should be quit before using the Desktop Shutdown feature.

You can spot open !Run files using our Open File Manager (magazine disc 6:5). The program, as described in that issue, can be used to identify open !Run files and close them before shutting down the machine, thus preventing crashes such as the one described.

PINEAPPLE'S CD-DRIVE REPLICATOR

Lee Calcraft

The indispensable Pineapple anti-virus software !Killer (version 1.392) is not happy when asked to scan very large discs. Once it has scanned more than a couple of thousand objects it seems to develop a mind of its own. When scanning one CD-ROM, it placed a row of 15 CD-ROM drive icons on the icon bar before expiring. The solution is to scan sub-directories individually when discs contain very large numbers of items.

LOADING ALARM FILES AUTOMATICALLY

D. Cawsey

The old RISC OS 2 alarm system stored the alarm file in the !Alarm application directory, and invoked it automatically when Alarm was loaded. The new RISC OS 3 alarm system allows Alarm data files to be stored anywhere. This is more flexible, since you can store separate alarm databases (for school term, for work, for holidays, for different users of the same computer, deadlines for different projects etc.). Loading *Alarm* using the configuration option will only load the alarm file *$.Alarm*, if it exists. To load any other Alarm database, a line like:

```
Run Resources:$.Apps.!Alarm <Alarm>
```

where *<Alarm>* is the full pathname, should be put in a boot or Obey file.

Try saving an alarm file from *Alarm*, generating a Desktop boot file using the Task Manager, and looking at the line that loads Alarm.

LOCATION OF !SYSTEM ON A HARD DISC

Anthony Moore

The RISC OS 2 and 3 User Guides both say that !System, !Scrap and !Fonts must be located in the root directory of the hard disc. This clutters up the root directory with applications which will be opened infrequently, and which are only placed there so that they are booted as soon as the hard disc is used.

Putting these applications in the root directory is not necessary, though it may seem the easiest option at first. All that is actually necessary is that RISC OS is told where these applications are located. The following does just that, giving a cleaner root directory with less distracting detail.

Open a new directory in the root directory named Acorn (or whatever). Move !System, !Scrap, !Fonts into this new directory. Finally, make sure that the following lines are included in your boot file:

```
filer_boot ADFS::$.Acorn.!System
filer_boot ADFS::$.Acorn.!Scrap
filer_boot ADFS::$.Acorn.!Fonts
```

Note that this hint is only for those who use boot sequences to get their computers up and running.

FILECORE IN USE

David Spencer

If a fatal system error occurs during a disc operation, you may get the error "Filecore in use"

next time you access a disc. This can be prevented by giving the following command at the command line following a crash:

```
RMReinit <fs>
```

where <fs> is the name of your hard disc's filing system (e.g. ADFS).

QUICK RESIZING OF FONTS IN DRAW

Kell Gatherer

When working with fonts in Draw, dragging on the resize icon adjusts not only the width of the text line, but also the proportions of the characters. A quick way of restoring the correct proportions is to take note of the font size in the Style sub-menu (which is likely to be a decimal fraction), enter the same figure into the Font Height writable icon, and press Return.

COLOUR-CODING SuperBD

Jo Calcraft

A handy way to group different icons together when using SuperBD is to colour-code them. Both the foreground and the background colour of the text of each icon may be set from the 4th and 5th entries on the main menu.

An updated version of the SuperBD sticky backdrop is included on this month's magazine disc.

TIP FOR NON-WIMP PROGRAMS

B.J.Horder

Like many people I often write simple Basic programs which aren't worth the effort of giving a Wimp front end, but which I use regularly. I frequently find it annoying that the Desktop insists on printing the line:

```
Press Space or click Mouse to continue
```

every time such a program is run from the Desktop.

To prevent the above message, put the following line at the exit point of your program:

```
SYS Wimp_CommandWindow",-1
```

Be warned that this line will crash the program if it isn't run from the Desktop!

RISC OS 3 DESKTOP BOOT FILES

Tony Shew

!Boot files can be a nuisance when accidentally double-clicked from the Desktop. !Boot applications are even more susceptible, since to alter them you need to Shift-double-click to get into the application directory, and it's easy to forget to hold down Shift.

The following lines added to a !Boot file prevent it from being run accidentally by double-clicking on it. The same two lines should be put at the start of the !Run file of a !Boot application:

```
IF "<Boot$Flag>"<>"" THEN ERROR This
application can't be run from the Desktop
  Set Boot$Flag 1
```

!Boot will now only work during booting. Double-clicking on the icon at any other time will harmlessly produce an error message.

RISC OS 3.10 BASIC BUG

Martin Dale

In Basic V and Basic VI as supplied with RISC OS 3.1, there is a bug in the APPEND command. When APPEND is used in a situation where it will result in lines greater than 65279, the fatal error message 'Bad Program' is produced resulting in the loss of the program.

This appears to be due to a change in the coding of the RENUMBER routine in RISC OS 3.10 where, if an attempt is made to renumber a program causing line numbers greater than 65279 to be generated, the renumber is aborted. In RISC OS 2, a smaller step size was used automatically.

To avoid this dangerous error, you should use an editor such as Edit or DeskEdit, which will combine the programs correctly.

ZOOMING IN FontED

Kell Gatherer

FontEd regrettably doesn't have the magnification/reduction facilities available in *Draw*, and although you can export a letter into Draw, you can't easily re-import it into FontEd.

However, you can manipulate an individual character by dragging it from one FontEd window into another. In the other window you can enlarge or reduce the character by altering the design size (normally 500 - a larger value makes the character smaller), then drag it back into the original font window. In the same way you can use the *thickness* facility (available in version 0.31 onwards) to thicken up the lines.

Using the above method allows you, for example, to create the 'quarter' character by dragging a one and a four, reducing their size and creating a composite character in the original font. Alternatively you could create a new font of caps and small caps from one of caps and lower case.

If you have a version of David Pilling's *D2Font*, it is possible to import an individual character from

Draw into FontEd. You could then use D2Font to create a temporary "font" which might only have one or two characters, pull the font outlines into FontEd, and then drag from the temporary font into the font you're working on, perhaps having resized it using the technique described above.

ANOTHER MOUSE SHORT-CUT

George Laidlaw

The article *Getting to Know Your Rodent* omitted one important mouse combination. If you click the size icon with Shift held down, the window will open to full size, less enough space for the icon bar to remain visible.

A corollary of this is that clicking (as normal) on the size icon will now alternate between full screen and full screen with icon bar.

I use this combination frequently: in fact probably more than any other.

STYLE-SEARCHING IN IMPRESSION

Keith Powell

I was intrigued to read the hint *Changing Styles within Impression* by David Symes in RISC User Volume 6 issue 3, which detailed a method of finding and then italicising a word or phrase throughout an Impression document. The problem with Impression is that there are several ways of doing most things, and this is no exception. An easier way is to find every occurrence of the word and to press F3 each time the word is found.

However, to avoid having to press F3 it is possible to use facilities available in the *Find* dialogue box. To the right of this box are two menu arrows which when clicked reveal a list of the styles. Clicking on a style name (such as italic) inserts the appropriate style command at the cursor position within either the *Find What* or the *Replace With* dialogue box. You must add the style command both before and after the replacement text. You can then click on *Find Next* or *Replace All.*

Another use for style searching is incrementing sub-section numbers in a long document, perhaps because you have inserted a new sub-section 2, for instance. In the Find Next window insert two copies of the style command used for the sub-section and insert the @ wildcard between them, thus:

```
{"Sub-Heading"}@{"Sub-Heading"}
```

As each occurrence of the style command is found, the sub-section number can be manually adjusted.

EXCLUDING CODE IN BASIC

Andrew Hersee

When debugging programs, it's often useful to be able to exclude large areas of code, which are too long to comment out. Rather than commenting out the code with REM, or using the egregious GOTO to skip the lines, a simple, structured way to exclude them is to put:

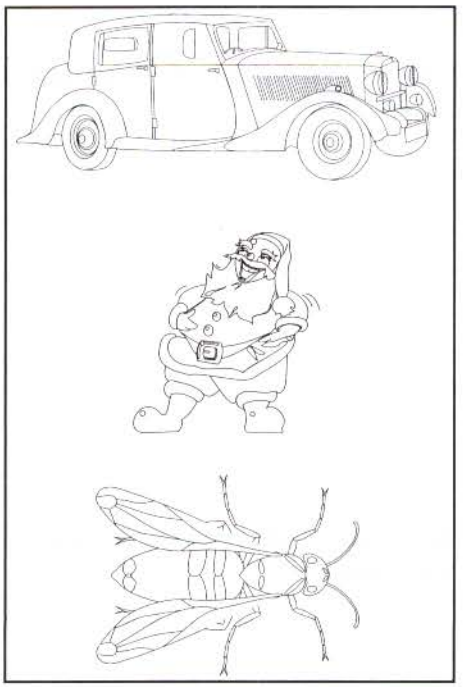
```
IF FALSE THEN
...
ENDIF
```

around the code.

DRAWFILES FOR COLOURING IN

Tony Shew

Parents and teachers: keep children (and adults!) amused for hours by printing Draw files for them to colour in. Load up the Draw file and click on Select All in the Select submenu. Now go to the Style submenu and change the line width to thin, the line colour to black, and the fill colour to white (*not* none). Click on the appropriate icons even if they are already showing the correct values. The file is then ready for printing. The following are examples from the Volume 4 Special Disc.



RISC User Public Domain Library

*** New ***
June 1993

Our Public Domain discs contain as near as possible to 800k (and not less than 700k). Each disc includes a 'Read Me' file, and instructions are included with the programs. The discs are offered as seen and are available to RISC User members only for the price of just *£1.60* each.

To order tel. 0727 840303, fax 0727 860263, or write (quoting membership number) to:

RISC Developments.
117 Hatfield Road, St. Albans, Herts AL1 4JS.

PDX8 - Image Processing

AIM is an image processing application, originating from Delft University in the Netherlands. It allows a grey scale image to be manipulated and transformed in a variety of ways as described in the article, *Working with Images*, by Lee Calcraft published in RISC User 6:7. It uses multiple windows and a vast array of operators and filters so that you can see on screen the result of any transformation in comparison with the source images used.

Other Recent Additions

PDX6

This disc contains ***SuperGram,*** a sophisticated anagram finder, complete with full instructions and sample files. Ideal for all users, particularly schools.

PDX7

365 Days (thoughts for the day), ***BasCrunch*** (fast and powerful Basic program cruncher), ***Dissi*** (powerful disassembler), ***Eazicopy*** (makes it easy to produce many copies of same disc), ***FileTree*** (analyses your directories and produces useful Draw files), ***FileUtils*** (lots of useful facilities on your iconbar), ***GateKeeper*** (more protection against viruses), ***IconMatch*** (well known game, good for schools), ***Interfero*** (load this module in your !Boot file for extra virus protection), ***Links*** (soft links allowing multiple copies of applications), ***Manager*** (comprehensive disc indexing program from Belgium), ***Menon*** (applications launched from iconbar menu), ***PackDir*** (fast and efficient file compaction), ***QMC*** (excellent little mode change utility), ***Scanner*** (the best Shareware Virus Detection & Killing program).

For more information refer to Simon Burrows' article in RISC User 6.3 (Jan/Feb 1993).

Sampler Disc (PDS1)

Contains the following sample programs from our Public Domain Software Library:

SoundTracker, Accounts, SC Label, Follow, Hangman, Multiprint, Rotate, STD and Wanda

All other PD discs remain available. Please send a s.a.e. for further details.

Public Domain Special Collection

The selected PD software listed below was fully described in Simon Burrows' article on the PD scene in RISC User 5:7 (June 1992).

PDX1	**Draw Plus**	Extended Draw
	Label	Label printing
PDX2	**Address D**	Address labels
	AGP	Advanced graph plotter
	Daily	Screen clock
	Draw Cross	Crossword generator
	Memphis	RAM filing system
	Translatr	Graphics image converter
PDX3	**ArcFS**	Decompression utility
	Risc BBS	Bulletin board system
	Impulse II	Inter-task communication
PDX4	**ArcFS**	Decompression utility
	PVray	Ray tracing
PDX5	**Hangman**	Classic game
	Interface	Classy Wimp display
	Menus	Wimp Menu editor

These discs are still available at the standard price of **£1.60** (inc. VAT and p&p).

Into the Arc: RISC OS Filings

by Mike Williams

When you are using the Desktop (and even if you are not), much activity focuses around the use of files of one kind or another. For better organisation, files are often grouped together in named directories, making the Desktop more manageable and an individual file that much easier to find. Much Desktop time can be spent keeping things neat and tidy: copying files from one directory to another, renaming files, deleting files, and other activities. Without this occasional *housekeeping*, any disc storage can rapidly degenerate into a confusion of unrecognised file names, where more time is spent trying to locate a mislaid file than achieving useful work.

As well as organising files in a sensible way, most users have a choice of where to store a file physically. All machines in the Archimedes range have a floppy disc drive; many users now have a hard disc installed, and it is certainly one of the most effective upgrades (along with increased memory) that any user can consider. All disc drives have to be connected or *interfaced* to the computer, and there is more than one standard in current use - terms like *IDE* drives and *SCSI* drives are often bandied about.

All machines have at least one other file storage area, albeit temporary, and that is a *RAM* disc, where an area of memory is allocated for the temporary storage of files and directories - temporary because as soon as your machine is switched off, all memory contents are lost, including those in the RAM disc.

INTRODUCING THE FILER

Now one of the characteristics of all good computer systems is consistency of approach. Learn a skill in one area, and then use the same skill in the same way for other tasks. On any Archimedes, a major component of RISC OS is a program (or *module*) called the *Filer*. This is responsible for the majority of file operations on your system, and Acorn has tried very hard to ensure that whatever storage medium you are using, the Filer appears to work in exactly the same way as with any other.

ICON BAR MENUS

All filing devices are represented by icons which appear to the left of the icon bar. My system shows a hard drive and a floppy drive. Clicking once with the Menu button over a drive icon produces much the same list of options for each drive, though not all are equally applicable. With some hard discs, the menu will include a *Shutdown* option. However, with RISC OS 3 it is much better to use the Shutdown option in the Task Manager (represented by the green acorn at the right of the icon bar). This is a much more comprehensive form of shutdown, checking for any modified but unsaved files and for information stored in any RAM disc which you might not wish to lose. On a RISC OS 3 system I recommend you always use this route before physically switching off your machine.

If you still have RISC OS 2 and a hard disc system which has its own *Shutdown* option, then do use this before switching off. It won't stop any unsaved files from being lost, but it does ensure that the hard disc is in the correct quiescent state before flicking the 'off' button.

For floppies, the most useful menu options are those for formatting and titling blank (or recycled) discs. If you recycle discs, and want to get rid of any existing directories or files, then the *FastWipe* application from RISC User 4:7 is a very quick way of doing this. Using the Delete option for a lot of files works much more slowly.

FILER WINDOWS

If you click (just a single click) on a filing device (floppy disc, RAM disc, hard disc), then the Filer will open a window on screen for that device showing a 'top level' display of that disc's contents. This window is normally referred to as a *Filer window*. As I explained last time, such a window may contain applications, files of various kinds, and folders (or directories) which can be similarly opened and viewed in turn. Figure 1 shows the Filer window for the root directory of my hard disc (mostly folders plus standard applications like !Boot, !Fonts, !System and !Scrap). It also shows the Filer window for one of these sub-directories where I have stored a number of applications which I use).

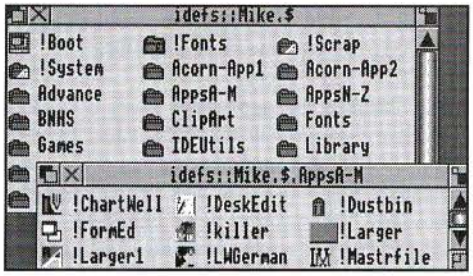


Figure 1.
A typical root directory and sub-directory

However, when the Filer opens a window like this, rather more is happening than might be apparent, and this hidden activity is of considerable significance for the subsequent convenience it provides to the user. When the Filer opens a window it checks each item displayed. If the item is an application (usually identified by the '!' in front of its name), the Filer looks inside the application directory (which you can do for any application by holding down the Shift key while double-clicking over its icon in the Filer window). The Filer looks for a special file called *!Boot*. If it finds such a file (and despite the '!' in front of its name this is not an application) it carries out (or 'executes' in computer parlance) the instructions contained in that !Boot file.

For example, in figure 1, one of the applications shown in the sub-directory is DeskEdit. If I double-click on this icon while holding down Shift I get the Filer window shown in figure 2. If I drag the !Boot file for this (or any other application) to Edit or DeskEdit (if already installed on the icon bar) a window will open showing the instructions in that file - see figure 3. Matters are no doubt beginning to look a mite technical, but what happens is relatively simple.

The instructions in this file tell RISC OS what icon represents DeskEdit, and about any files used by DeskEdit (text files), and it tells RISC OS what to do if you double-click on a text file - in this case to run DeskEdit. That is to say, it lets RISC OS 'know' about this application. As we put it, the application has been 'seen' by RISC OS.

On most Archimedes systems, it is very important for RISC OS to know about things like !System, !Fonts and !Scrap, so these items are often placed in the root directory of a hard disc, or in the root directory of your working floppy. Unless RISC OS has 'seen' !Fonts, for example, it won't know about any outline fonts, other than Trinity and Homerton which are now built into ROM under RISC OS 3. And if RISC OS doesn't know, then no other application will know either. Once RISC OS 'knows' about an application, it will correctly recognise any files belonging to that application whenever and wherever they occur (e.g. Ovation files).

The fact that this happens automatically when you open a window is often overlooked, but it can be detected. The first time you open a Filer window it can take quite a while before the window appears on screen - this is true of a RISC User magazine disc for example. However, if you open the same Filer window a second time, it will all happen much more quickly. Once RISC OS has 'seen' an application, it doesn't perform the same task of executing an application's !Boot file again - all the relevant information has already been stored and remembered.

Figure 2.
The application directory for DeskEdit

Figure 3.
The contents of DeskEdit's !Boot file

There is another practical aspect to this, which you can use to advantage in the way you organise your disc storage. If you have a lot of applications, it doesn't pay to store them all in a single directory. It is much better to divide them up into smaller groups - you can see that this has been done for the hard disc in figure 1. If you have one massive directory, then opening its Filer window will cause RISC OS to get acquainted with every single application stored there. An extreme solution, perhaps, is to put every application in its own sub-directory. Then RISC OS only has to look at the one application when you open its Filer window, but this approach does have its disadvantages.

The best solution probably sits somewhere in between. Divide your applications up into convenient groups. Keep all little-used applications in other directories where they can lie unnoticed unless required. With some planned reorganisation like this you may well be surprised how much you can speed up the use of your system.

SetTools Application

by Richard Hallas

Choosing the window style

This application provides an easy way of selecting from a choice of window styles for your Desktop, including the new classy 3D style, as described in the article on *Customising the RISC OS 3 Desktop* elsewhere in this issue.

When installed, the application opens a window offering a choice of four styles of window, the new RISC OS 3 3D style, a slimline version of the same, a standard RISC OS 3 style, and the previous RISC OS 2 style. Selecting one of the four styles makes that the current choice, and the Desktop will immediately be redrawn in the new window style.

At any time, opening a Filer window containing the SetTools application will redraw all Desktop windows in the current style, and including a suitable line in any !Boot file (Filer_Boot followed by the full pathname of your saved copy of SetTools) will ensure that your choice of window style is automatically invoked at start-up.

There is, of course, nothing to stop you designing your own set of sprite tools for use with this application. Full details are included as a Help file within the application. SetTools gives you every opportunity to configure your Desktop in a way which will be the admiration of all your friends.

For reasons of space this application is only available on this month's magazine disc.

Archimedes Hints & Tips Compendium

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C Notebook: Hints & Queries

Compiled and Linked by Lee Calcraft

Could you please tell me how to add a number to the end of a filename in a loop so that I can save the whole screen to a file, with changing filenames - e.g. Pic1. Pic2 etc.
Atle Mjelde Bardholt (Norway)

The simplest way would be to use something like:

```
int i=1;
char string[100];

do
{
  ....
  sprintf(string,"Screensave <App$Di
r>.Pic_%d",i);
  system(string);
  ....
  i++;
} while (....);
```

This would generate leafnames in the sequence *Pic_1*, *Pic_2* etc.

By replacing the %d with %02d you would generate the more useful sequence: Pic_01, Pic_02 etc.

HUNTING ELUSIVE BUGS IN MODULES

David Spencer

Tracking down fatal errors such as address exceptions in modules written in C is not easy, as DDT can't be used in such cases. There is however, a fairly simple procedure that can be used to track down the offending instruction.

Firstly, when you load the module, find its start address using *Modules. Then, when you get a crash, subtract this address from that given in the error message. This gives an offset into the code. Next re-link the code with the *Link map* option enabled, and use the information given to find out which object file chunk the error occurred in, and also its offset into that chunk.

Then use *ObjLib* on the appropriate file to display the symbol table, and find the closest program label before the error. This will usually give you the name of the routine in which the error occurred. If you want an individual instruction, then recompile the offending source with the *assembler* option on, find the relevant label, and count on the appropriate number of instructions. In doing this you should remember that the address given in fatal errors is usually eight bytes further on than the address of the offending instruction.

FASTER SPRITE PLOTTING

David Pilling

(Original source Acorn Computers)

When you plot a sprite in the Desktop, it is usual to supply a pixel translation table. However if this table is diagonal, all colours mapping to themselves, it is unnecessary and slows things down. This is a replacement for *sprite_put_scaled()* in RISC_OSLib which looks at the supplied translation table and ignores it if it is not needed.

```
os_error * sprite_put_scaled(
             sprite_area *area,
             sprite_id *spr,
             int gcol_action,
             int x, int y,
             sprite_factors *factors,
             sprite_pixtrans *pixtrans)
{
  os_regset r;
  os_error *result;
  int i;

  for(i=0;i<256;i++)
    if (pixtrans[i]!=i) break;
  if (i==256)
    pixtrans=(sprite_pixtrans *)(-1);

  setfromtag(52, area, spr, &r);
  r.r[3] = x;
  r.r[4] = y;
  r.r[5] = gcol_action;
  r.r[6] = (int) factors;
  r.r[7] = (int) pixtrans;
  result = sprite__op(&r);
  return result;
}
```

Unfortunately, this function seems to go wrong with the RISC OS 3 DMP driver, but works fine on screen or to Laser Direct. Has anyone any ideas?

Please send us your C hints - all published hints will be paid for.

WRITE-BACK

A4 NEEDS SUPPORT

I am the owner of an Acorn A4 Notebook computer. Its speed, performance and portability are excellent. My main concern is its lack of support in expansion. I knew of its limited expansion capability before purchase, but also aware of what is possible via its standard ports.

For example, there are hundreds of fax/modems readily available in the PC world which can easily be plugged into the serial port. Now, thanks to David Pilling, many of these can be used by Archimedes owners, including those with an A4.

There are many other peripherals available (such as scanners and digitisers) which can be connected to a serial port or a bi-directional parallel port, simply waiting for appropriate software. Why aren't they being used to their full potential?

Another expansion possibility is via the Econet interface. Vertical Twist uses this for connecting its MIDI interface/sound sampler, but what of an A4 version? Vertical Twist says it is considering it but didn't feel that there was sufficient demand.

Although designed for education, the A4 is potentially a powerful business machine (I use it as such). But to compete against equivalent PC Notebooks, it must have a certain amount of expandability. Standard PC features such as fax/modem, SCSI interface etc. must somehow be implemented if the A4 is to succeed, as must the facility to add on available peripherals. Perhaps an Acorn A4 pressure group could be started up!

My main plea is to software houses and manufacturers. Please bear the Acorn A4 in mind when designing peripherals and/or relevant software.

Jimmy Imossi, Gibralter.

What do other readers, in particular A4 users, think? And what about software and hardware developers?

REVIEWS WHICH GIVE THE FACTS

I am very pleased to see the more critical/factual reviews in RISC User, although it is a pity that your policy of not reviewing RISC Developments' items or comparing others with them is so strictly adhered to. Surely it would be possible to get a truly independent reviewer of your own products and guarantee no editorial changes other than on length or standard of English?

Those of us overseas are at the grave disadvantage of not really seeing products before we buy them since few retailers take the risk of importing expensive, possibly non-saleable items on spec. Most magazine reviews are too descriptive and insufficiently critical.

J.M.A.Brown, New Zealand

Our policy not to review our own products is one which we have now followed for many years, and is one which is in the best interests of all, though it has some disadvantages as Mr. Brown points out. We believe that it is essential to maintain our reputation for fair and objective reviews. In view of this our policy will stay as it is, but we certainly hope that all readers are able to rely upon the objectivity of the reviews we publish.

FACT AND FONTASY

Kell Gatherer, who has produced several of the outline fonts which we have provided to RISC User readers (for example, *Trojan* on last month's magazine disc), has written with a number of comments about the state of outline fonts for the Archimedes range. He writes:

Recently I sent a font to the Electronic Font Foundry who rejected it on the grounds of PostScript compatibility. EFF says that any font which claims PostScript compatibility must get the spacing right, and that the only way to do this is to pay a licence fee to the originator (e.g. Adobe) and get the width of the characters and their spacing in thousandths of a printer's **em**.

I was also told that I didn't get the hinting right nor correctly use scaffold lines within fonts (now corrected). I asked where I could get guidance in the correct hinting of fonts, or indeed better software than FontEd.

EFF obviously needs to protect its commercial interest, and are therefore not prepared to make available their expertise or font development tools, but it appears that Acorn are not well placed to assist either. It would seem that the developer of FontEd has left Acorn, and that there was no one else who understood hinting properly. According to EFF, the latest fonts

from Acorn didn't follow the correct principles.

EFF also said that an amnesty ended last December, and that major font houses were looking to prosecute persons who sell their fonts under other names. This doesn't apply to my Trojan font - only if I call it Trajanus and claim PostScript compatibility would I be treading on toes. What I have done is **emulate** *well-known fonts, but with sufficient characteristic differences for them to count as artistic interpretations.*

*Now I find all of this rather sad. I'm at least an honest chap in such matters, and the fonts I'm offering are the result of many hours work. I'm abandoning any claim to PostScript compatibility, since I can't properly do so without paying a licence fee to the originator. But it does rather seem that if you want to use a particular font on an Archimedes, there's only one remaining source - EFF - and you have to wait for them to produce it. Certainly they are the only source of RISC OS 3 fonts with kerning data, since the latest version of FontEd (supplied to me by Acorn in December) can't create or edit kerning data. It may be that the new Programmer's Reference Manual describes the kerning format (***it does***) - but that's no good to a font designer; what you need is software.*

So if I wanted to produce professional quality software I couldn't, it's as simple as that. In time I expect someone (maybe even me) will come up with the right software - but I'm worried about the time gap. For the Archimedes to succeed in the DTP world it needs to be at the forefront, and one very important area is access to the latest fonts.

Kell Gatherer

Kell Gatherer has raised some important and significant issues here. We also hope to bring you more information on font design, and more of Kell Gatherer's excellent font implementations.

PC MATTERS

The article in RISC User 6:1 on using Microsoft Windows 3.0 under the PC Emulator suggested that the slow performance was just a result of the need for the Emulator to decode every instruction, and that a faster processor would cure the problem.

Windows needs more than just processor speed to work. Two vital elements are RAM and the speed with which the hard discs can be accessed. Even on a 386 PC a fair amount of tinkering is needed to get acceptable performance and the PC Emulator is up against a brick wall unless it can access RAM above the 640K of conventional memory. The subjects of Expanded, Extended and 'Upper Memory' (between 640K and 1Mb) are complex ones, but Windows is memory hungry and from my own experience a machine with 4Mb of accessible RAM is a minimum requirement to run Windows. Until the PC Emulator can run memory managers such as HIMEM.SYS, or unless Acorn write their own, attempts to get a workable version of Windows running on the ARM will remain elusive.

I agree with Lee Calcraft's comments on the style of Windows. It is not as intuitive as it could be. What Microsoft has done is to create a system in which there are lots of buttons which are accessed from the mouse. For example, loading a file cannot be done with the simple click and drag with which Archimedes users are familiar.
One aspect of the PC which I do like is the keyboard. The persistence of Acorn to remain with a non-standard layout can only damage them in the marketplace. I am constantly frustrated using my A3000 because both backspace and Delete perform exactly the same function, and also because when Caps lock is on, lower case letters cannot be produced by using the Shift key. Curiously, the A3000 does sometimes behave like a PC in this respect. But I cannot reproduce it, and I would be grateful if anyone has any advice on how to achieve this all the time.

The lesson for Acorn however, is to forget the past and move away from the Beeb. People like me who use PCs all day at work want to switch to another machine at home with the minimum of disruption and re-education of fingers.

R.J.Laidler

To some extent, the moral of Mr. Laidler's letter has to be that if you want a PC then buy a PC. The Archimedes is not a PC and that gives it its strengths, and in some contexts and for some people that is also its weakness. While the PC/MS-DOS world is important, it is not the only world that exists in computing terms. Many users prefer UNIX to MS-DOS, for example, and as we have said before, not adopting the PC format does not seem to have done Apple any harm. In fact, though a small point, Apple Macintosh keyboards appear to function as does that of the Archimedes regarding the use of Caps Lock. What is good enough for Apple is surely no disaster for Acorn. Perhaps more meaningful and less happy comparisons can be made between the quality, variety and robustness of software available for either the PC world or the Apple Macintosh compared with that for the Archimedes. This still remains a gulf to be bridged.

THE VALUE OF GOOD SERVICE

I am becoming increasingly frustrated by software and hardware companies who fail to provide the support and backup that is promised for the return of the registration card. The cards are very rarely prepaid, even after buying items costing many tens of pounds, so that companies can add another name and address to their mailing list.

There are good examples. I had difficulty with Ovation when it was first released, but a letter to Beebug as it then was brought an answer by return of post. Similarly Base5, producers of DBMS, have been equally helpful.

Many companies claim that once registered, you will receive details of new products and upgrades. In practice few companies do this. However, one which regularly sends details of new products is Computer Concepts.

Suppliers need to realise that the support and backup offered by themselves, rather than just the technical specification of the product, are becoming increasingly important, for schools and for individuals, when deciding which items of hardware or software to purchase.

Stephen Kendall

EARLYBIRDS UPDATE

I was delighted to note Chris Drage's article **Education: Developing Picture Processing** *in the April issue of RISC User (RISC User 6:5), in particular his very favourable comments about the* **EarlyBirds** *suite, produced by this service.*

Regrettably Chris has restated details from a year ago and has quoted prices and an address which are now out of date. The prices for EarlyBirds 1, 3 and 4 are now £15, £10 and £10 respectively, a substantial reduction on the prices quoted. Our address and telephone number have changed to Information Technology Service, Finstall Centre, Stoke Road, Bromsgrove, Worcs B60 3EN, tel. 0527 574654, fax 0527 570261.

A number of additional features have added to EarlyBird 1 since Chris reviewed the program, notably text captions in three sizes, a straight line tool, sixteen brush sizes (not three), and a versatile outline trace facility. More important, perhaps, EarlyBird 1 is now able to import sprites from other sources and pass them on to the Cut-Up (simple jigsaw) and Snap programs, which have previously accepted only sprites created by EarlyBird 1 itself. Free upgrades are available on return of the original discs.

James Milton, Advisory Teacher
Hereford & Worcester Education Department

RISC OS 3 KEY SHORTCUTS

The Help file for the above (see Hints & Tips, RISC User 6:4) states that certain characters cannot be obtained directly from the keyboard. Those letters with accents or other modifiers such as the cedilla can be obtained from the keyboard, a fact which I found by trying combinations of keys.

The accents etc. standing alone use Alt together with one of the various character keys at the right-hand end of the alphabet keys (excluding the Backspace key), followed by the appropriate letters, as in table 1. For example, pressing 'Alt-;' followed by pressing 'a' gives 'ä'. This of course saves one key press per accented character against Omer Roucoux,s numerical method, and excluding control characters, makes the total of keyboard characters 100, with two kinds of Space and Delete, including seven accent/modifier characters.

Alt plus:	*then Space gives:*	*or, then letter gives:*												
[	´	á	é	í	ó	ú	ý		Á	É	Í	Ó	Ú	Ý	
]	`	à	è	ì	ò	ù	ỳ		À	È	Ì	Ò	Ù	Ỳ	
;	¨	ä	ë	ï	ö	ü	ÿ		Ä	Ë	Ï	Ö	Ü	Ÿ	
'	^	â	ê	î	ô	û	ŷ	ŵ	Â	Ê	Î	Ô	Û	Ŷ	Ŵ
'	~	ã			õ		ñ		Ã			Õ			Ñ
.	°	å							Å						
/	¸						ç								Ç

E.F.Kelly

PIN BOARD

CALLING ALL READERS

Starting with the next issue we are introducing a short but regular column in the magazine to provide better opportunities for publishing short and interesting programs. The idea is to allocate up to one page for a listing together with a short description. We expect that most such programs will not be Wimp applications, but illustrate some useful or interesting technique. Any contributions for this column (which will be paid for) are most welcome, as are requests and ideas for programs.

The RISC User Guitar Player

by Steve Hunt

Even if your knowledge of music is next to nothing this splendidly implemented application will do much to convert you to the delights of the guitar. It is ideal for playing chords, and the strings can be realistically plucked with a 'hand-held' plectrum using the mouse. This application is a delight to use, and those with a more serious interest in guitar music will find much to suit their needs.

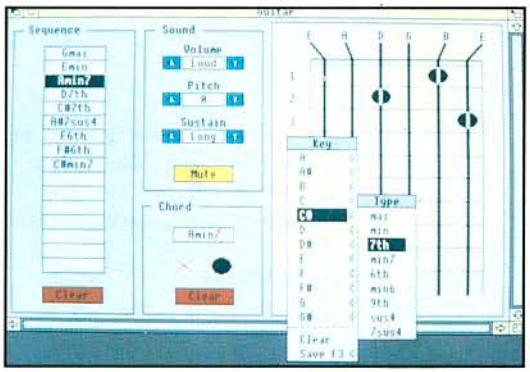
Guitar will help you to learn about guitar chord shapes, and will allow you to experiment with your own chord sounds. It is also useful as a source of accurate pitch for tuning a guitar.

The action takes place in one large window. To the right is a representation of the neck of the guitar showing where the strings must be held down (or "fretted") to form a particular chord shape. Holding down the Select button enables you to strum across the strings of the guitar.

A key and chord menu enables you to select from standard chords, or to devise your own, and these can be built up into a repeatable sequence. A function key then enables you to cycle through the chords such that it becomes perfectly possible to strum away, changing chords as required to accompany a song or other instruments.

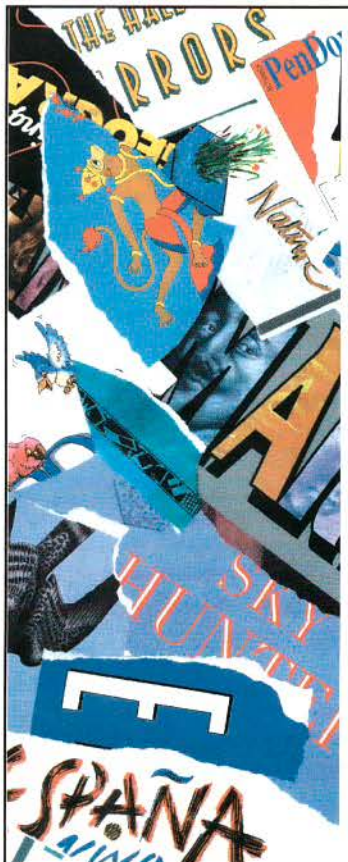
There are also a number of other controls for *Volume*, *Pitch* and *Sustain* levels, and there is a *Mute* button which lets you 'kill' the sound quickly - this is particularly useful when you have Sustain set to *Long*.

Finally, chord sequences can be saved (as a text file), and saved sequences can be reloaded simply by dragging into



the Guitar window. The use of a text file means that you can also edit the chord file using Edit or DeskEdit. Full instructions are included with the application.

For reasons of space this application is only available on this month's magazine disc.



Education Software Programming Opportunities

Longman Logotron is looking for RISC OS programmers with the skills and aptitude to work on developing exciting educational applications for younger children.

An appreciation of educational needs, visual awareness, graphical expertise and programming ability are all equally important qualities.

We can offer you the opportunity of working with one of the largest and most successful publishers in UK education, with all the marketing benefits and development resources you would expect.

If you think you might be the kind of person we are looking for, Please contact us now.

Some examples of previous programming work would be very helpful.

Nicola Bradley
Longman Logotron
124 Cambridge Science Park
Milton Road,
Cambridge CB4 4ZS

TECHNICAL QUERIES

This month Alan Wrigley deals with sprite areas, panes, RISC OS 3.11 and validation commands.

Q *Dear Sir*

What size should a user sprite area be? In some programs I have seen a line such as:

```
size%=EXT#file%+16
```

while your Wimp Programming for All book says:

```
size%=EXT#file%+4
```

Which is correct?

Keith Vernon

A The formula given in *Wimp Programming for All* is correct. As well as all the sprite definitions, a sprite file contains the full sprite area control block, *except* for the first four bytes which hold the size of the area. In order to load a sprite file into memory, therefore, you must dimension an area at least 4 bytes longer than the file, and place the size of the area in the first word. The following code can be used to find out the size of the file whose full pathname is held in *spfile$*, and load it into the sprite area *sparea%*:

```
SYS "OS_File",17,spfile$, TO ,,,,len%
DIM sparea% len%+4
!sparea%=len%+4:sparea%!8=16
SYS "OS_SpriteOp",&10A,sparea%,spfile$
```

The value of 16 which is placed at *sparea%*+8 is simply the offset from the start of the area to the start of the first sprite definition.

Q *Dear Sir*

I wish to open a window with a vertical scroll bar inside another window. I am attempting to do this by making the inner window a pane. This works fine until I reopen the main window after using the "Wimp_SetExtent" call, whereupon the pane re-dimensions itself to the size of the main window. By using the pane option I also seem to be limiting myself to panes that are attached to the title bar - is it possible to attach a pane anywhere else?

B.W. Messer

A A window with the *Pane* bit set is just like any other window in almost every respect. There is really only one significant difference, which I will come back to later. It is entirely up to the task to decide which window to attach a pane to and where (the pane may even be physically separate from its parent), so you are certainly not limited to the title bar. If you open the windows correctly, the use of "Wimp_SetExtent" on the parent should have no effect on the pane.

Handling panes requires careful thought if they are to operate correctly in the way you intend. Firstly, you will not normally want to move the pane independently of its parent, so the *Movable* bit should be unset. Secondly, the Wimp will assume that the parent of any pane is the window immediately below it in the stack, so it is important to open the windows in the right order to ensure that this is the case. Thirdly, although the pane can be positioned anywhere, you may need to place it carefully - for example, if you put the pane near the right-hand edge of a wide window, and then resize the parent window so that only its left-hand half is visible, the pane could be left high and dry on its own. Fourthly, you must always ensure you open the pane whenever the parent is to be opened, and close the pane when you receive a close window request for the parent.

To open the window, you will need to alter your program wherever "Wimp_OpenWindow" is called. If the window in question is the parent window, you must read its current co-ordinates, either from the block returned by "Wimp_Poll" or by calling "Wimp_GetWindowState". You must then open the pane *first*, adding to or subtracting from the parent's co-ordinates as required to position it correctly; for the "handle to open behind" (block+28), you should use the value returned by "Wimp_Poll", or -1 if you want the window at the top of the stack. Now open the main window, using its original co-ordinates, but with the handle of the pane in block+28. This ensures that the parent is always immediately behind its pane.

Finally, the main difference between panes and ordinary windows is as follows: if a pane gets the input focus then the window below it in the stack

is highlighted instead - hence the importance of ensuring that window is always the parent.

Q *Dear Sir*
Everyone is talking about 3.10 being the most recent version of RISC OS, but my computer appears to be fitted with RISC OS 3.11. I am already a little confused about all the other variations of RISC OS - could you please clarify the situation?
A.L.V. Pickard

A The first commercial release of RISC OS, in 1989, was version 2.00, and this remained the standard operating system for all Archimedes models except the A540 and the UNIX workstations, which had a slightly updated version, 2.01. RISC OS 3 first appeared on the A5000, which was released in 1991, as version 3.00. Acorn later improved the operating system before making it available as an upgrade for earlier machines; this was eventually released in 1992 as 3.10. Version 3.11 is the latest incarnation of RISC OS, and has been released primarily to fix two bugs in version 3.10, though the programming interface is identical, and so as far as programmers are concerned it can be considered the same as 3.10.

Version 3.11 includes two modules: *ADFSUtils* and *NetUtils*. The first of these fixes a bug which mainly affected users of 1Mb machines and caused files written to floppy discs to be corrupted under certain circumstances. The second module fixes a serious bug in the NetFiler which caused files longer than 80K to be reduced to zero length. If you have RISC OS 3.10 and are likely to be affected by the NetFiler bug, *NetUtils* is available separately and can be soft-loaded in your machine. *ADFSUtils* is *not* available separately; the cure for the ADFS bug is to configure *ADFSbuffers* to zero instead of the default setting (not forgetting to reconfigure it if a power-on reset is performed).

There are several ways to discover which version of the operating system your machine is fitted with. The simplest method is to type **FX0* at the command line - a message will be displayed showing the version. This is not much use if a program needs to know which version is installed in order to choose a particular course of action, and for such cases there are two other methods available. Firstly, if you just want to know whether the version is higher or lower than a particular value you can read the version number of the Utility Module (which is always the same as the OS) by using the *RMEnsure* command in a !Run file and setting a system variable accordingly. For example:

```
SetEval OS$Version 1
RMEnsure UtilityModule 3.10 SetEval O
S$Version 0
```

would result in the variable *OS$Version* being set to 1 if RISC OS 3.10 or greater is installed or zero if not.

The third method uses OS_Byte 129 or INKEY (-256) and returns a specific value depending on the version of RISC OS installed. The call is made as follows:

```
SYS "OS_Byte",129,0,255 TO ,version%
```

Don't forget the comma after the keyword TO. Alternatively you can use:

```
version%=INKEY(-256)
```

In both cases the value returned in *version%* will be 161 for version 2.00, 162 for 2.01, 163 for 3.00 or 164 for 3.10 and 3.11 (which indicates that Acorn makes no distinction between the latter two versions for identification purposes).

Q *Dear Sir*
I have been trying to use the new P validation command to change the pointer shape using a sprite of my own design, but the pointer just disappears when it is over the icon. What am I doing wrong?
Geoff Senior

A The P command can be included in an icon's validation string to tell the Wimp to change the pointer shape to a specified sprite when the pointer is over that icon; for example:

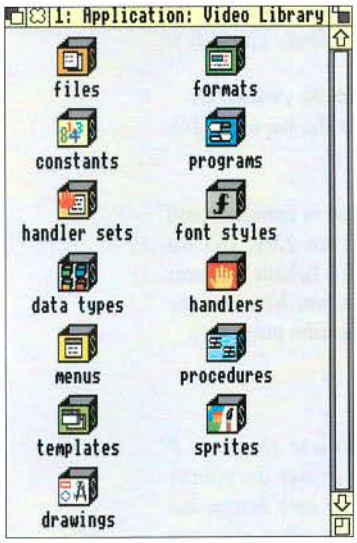
```
Pmy_ptr
```

would cause the pointer to adopt the sprite *my_ptr* as its shape.

There are two likely causes of your problem. Firstly, the sprite specified must be in the Wimp sprite pool; the easiest way to do this is to include it in the *!Sprites* file so that it is automatically loaded into the pool when the application is seen by the Filer. Secondly, the pointer only uses four colours, so the sprite must be created in a 4-colour mode (e.g. mode 8). If you use a normal mode 12 sprite, nothing will happen.

S-BASE

From stock control to accounting, from library management to customer information, *S-Base* is a programmable, fully relational database management system, which makes the development of high quality, customised, database applications quick and easy.



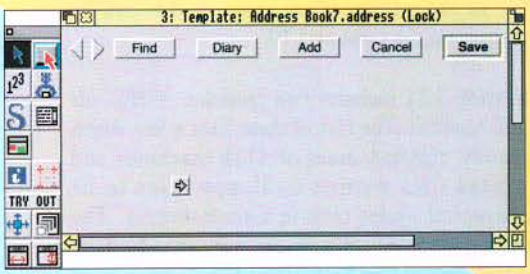
S-Base provides a state-of-the-art, WIMP-based, integrated development environment. At its heart is the S language, a high level database programming language, with over 300 commands and functions. In addition, powerful program editors, a style-based template editor, an intelligent screen layout editor and a multifile database designer, ensure that design, programming and testing can all be carried out within the *S-Base* environment.

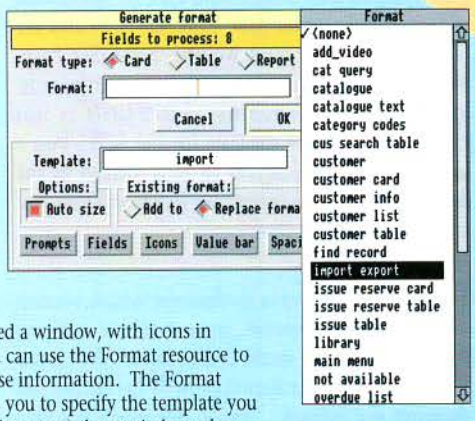
Using *S-Base*, you can create highly customised applications with minimal programming effort. A simple, card-based multi-tasking application can be created with only a few lines of code; a large, complex, high performance system can be reliably engineered in the shortest time.

S-Base is available in three versions: *S-Base Personal*, *S-Base Developer* (which may be used to create compiled applications for sale) and *S–Base Developer Plus* (for creating networked, multiuser applications).

TEMPLATES

An important part of creating a data application is the design of the windows and icons. *S-Base* provides a comprehensive window designer to ensure that your applications are consistent with other RISC OS based software and have a professional look.

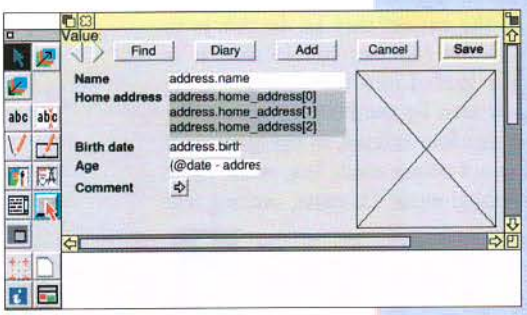




RESOURCES

An *S-Base* application is made up from a number of 'resources'. For example, the 'Files' resource defines how data is to be stored; the 'Templates' resource creates a window, with icons and buttons; the 'Formats' resource displays database information in the window.

You can copy useful resources from the example applications provided, or from applications you have written, then modify them to fit your new application. *S-Base* copies related resources automatically.

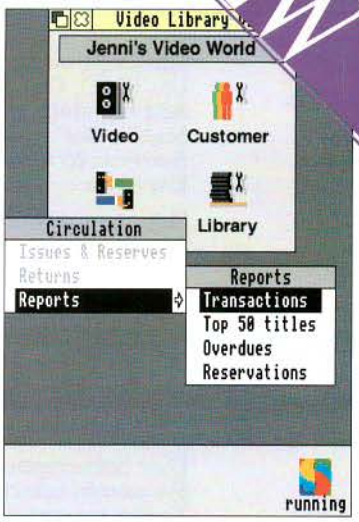


FORMATS

Having created a window, with icons in position, you can use the Format resource to insert database information. The Format dialogue asks you to specify the template you want to use (by name) then switch on the various format elements — prompts, fields, icons, value bar, spacing. *S-Base* will then insert the correct number of fields, of the correct length, into the window, together with prompts derived from the field labels. This information can be re-positioned, and you can choose different fonts and colours to create an attractive screen display.

THE PROGRAMMABLE RISC OS RDBMS

NEW



INTEGRATION

S-Base provides an interpreted, completely interactive environment in which to develop your application. Whenever an error occurs, *S-Base* immediately displays the object that caused the error, in a suitable editor, so that you can inspect and modify it.

Once your application is completed, and tested, *S-Base* Developer will compile it into a compact, distributable binary file, which cannot be edited by your users.

For the beginner, *S-Base* is supplied with a number of 'shell' applications which can be modified and extended with very little technical knowledge.

FLEXIBLE DATA HANDLING

An *S-Base* application can incorporate menus, dialogues, tables and multi-choice selectors — whatever data entry method is most suitable for your users. The format layout editor makes it easy to assemble and link these elements together into an integrated design, and *S-Base* checks everything you do for consistency, reducing the possibility of frustrating mistakes.

Besides text (in any outline font style), cards, reports and tables can include drawings or sprites. Reports can be produced in virtually any format, including multi-column text, address labels, ID cards, stock catalogues, etc.

HIGH SPEED

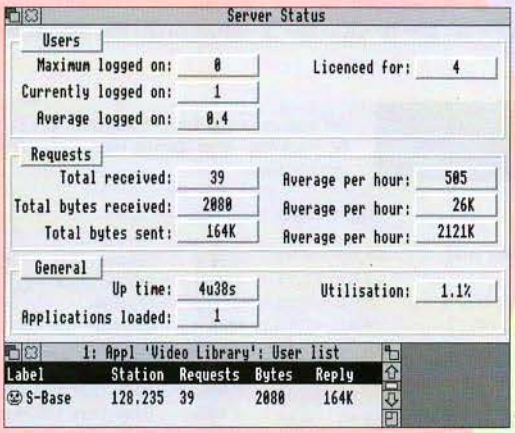
S-Base is designed to handle large volumes of data at speeds acceptable to the user: An *S-Base* application can process very large files, containing many thousands of records, in seconds, updating the screen as fast as a C program written by an expert.

Whereas a typical database can take up to five minutes to add 500 records to a file with five indexes (since the indexes must be updated after each record), *S-Base* can add 5000 records in under one minute (timed on an A5000), by performing the re-indexing later.

S-Base places no limits on the number of files you can open at once. Your application can compare, process and display data from dozens of different files with no difficulty.

NETWORKED AND MULTI-USER APPLICATIONS

S-Base Developer Plus can be used to create applications that operate as multi-user systems over a network — where the combination of a smart database server, and highly optimised data exchange protocols, ensures high speed operation, even over Econet. Operation over the network is completely transparent to both the user and the developer.



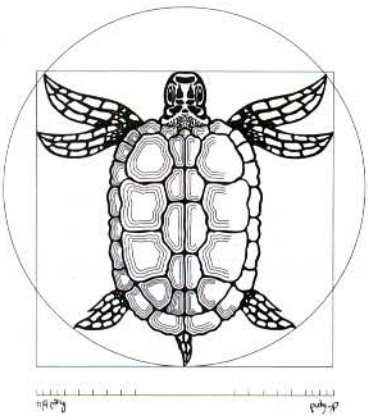
The multi-tasking S-Base server application, S-Net, is independent of the network file server and can run on any network machine. A single S-Net server can offer any number of applications across the network, so a 2 Mb machine can serve several clients running different applications. Client machines can present a menu of applications available on the network or can be configured to locate the required application automatically.

Applications designed for network operation will run on a stand alone machine without modification.

Single User Prices

S-Base Personal	£99.00
S-Base Developer	£199.00
S-Base Developer +	£299.00

For *S-Net*, and education and business site licence prices, or for further product information, please contact us.



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The programs from each issue of RISC User, together with a number of substantial additional items, are included on a monthly 3.5" disc. This is available to order, or you may take out a subscription to ensure that the disc arrives at the same time as the magazine.

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Last month's special offers on back issue discs and magazines are being maintained. All issues are currently still in stock except Volume 1 Issues 4&5 magazines. All subject to availability. Please include postage when ordering.

	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5
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Disc	£2.00 each	£4.00 each	£4.00 each	£4.75 each	£4.75 each

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Classifieds

Members may advertise their unwanted computer hardware and software through the personal ads column free of charge. However, we are unable to guarantee in which issue your advertisement will appear.

• A5000 4Mb RAM, Acorn multisync, Learning Curve with PC Emulator v.18, various software, discs, magazines, books including RISC OS Programmers Reference Manuals etc. £1200 o.n.o. (all boxed). Tel. London 081-698 3772.

• Dual 3.5" disc drive unit with PSU (ex Cumana), RISC Dev. A3000 Internal Disc Interface, sold as package £110, courier charge extra, also 5.25" 40/80T drive, no PSU and lots of discs £15. Tel. Surrey 0428 713326 eves.

• Helix Basic - Offers or swap for BEEBUG 'C'. Tel. King's Lynn 0366 501001.

• Acorn Desktop Publisher £40, (inc. Clip Art pack), BEEBUG Star/Epson colour printer driver £8, Minerva GammaPlot £20, System Delta+ £30, Mailshot (for use with SD+) £15, Digital Research Dr DOS 5.0 £20, (for use with PC Emulator), Games - Nevryon £8, Powerband £8, Computer Concepts ROMs(for CC ROM/RAM podule), InterChart £10, InterSheet £15, SpellMaster £20, all with original boxed and/or documentation. Tel. Surrey 0737 832159 eves.

• Acorn DTP £95, 1st Word Plus £60, Genesis Plus £50, Hot Link Presenter £38, Poster £65, Schema £75, PCATS Graphic Enhancer £160, Next Technology CD ROM £380, Acorn Multiscan monitor £130, Lingenuity SCSI interface for A3000 £135. Tel. Surrey 071-215 0520.

• Archimedes 310, IFEL 2Mb memory board, 12Mb static RAM, PC Emulator, one extra disc drive, RISC OS upgrade, IO podule, CC ROM podule, battery, dust cover, keyboard extension lead, word processor, 1st Word Plus (rel.2), Philips green screen monitor all for £500, Epson LQ500 printer complete with single and continuous sheet feed, plus 1,000 sheets of continuous feed paper £165, four vols. Archive with binders £30, Arc Shareware discs (1-17) with backup discs £2 pair, Chocks Away compendium £18, E Type £9, Interdictor 1 £9, 40 blank discs in lockable box £18, Arc First Steps £4, Basic V manual (Acorn) £9, RISC OS PRM £35, joystick with mouse adaptor £20, dozens of computer magazines free to purchasers of equipment. Buyer collects Hastings area - Wheelchair invalid. Tel. East Sussex 0424 813794.

• BEEBUG 5.25" disc interface (Archimedes) 40T drive, DFS reader software and 50 5.25" discs, the lot for only £40 + p&p. Tel. Derby 0332 557751.

• ARM 3 upgrade (Watford) £130, RISC OS 3.1 upgrade (unregistered) £35, External 45Mb IDE drive + Internal A3000 interface £230, VGA/Multisync VIDC Enhancer £35, A3000 2Mb RAM £20, HCCS Vision Digitiser, external £40, all with full documentation and software. Tel. Lancashire 0772 265421 day or 0253 691074 after 6pm.

• A5000 1 year old, 4Mb RAM, 40Mb hard disc, original software £1,150. Tel. Cheshire 061-962 6668.

• 2Mb memory upgrade for A3010 £20. Tel. Cambridgeshire 073 129 372.

• Canon BJ 300 printer, unused since new printing head fitted, in excellent working order with two spare ink cartridges, manuals and custom 1st Word Plus printer driver for Mathematics, German and Special Effects £250. Tel. Kent 0689 833790.

• Acorn Floating Point Co-Processor £250 o.n.o. Chartwell £15. Tel. Cheshire 0925 811420.

• RISC User magazines from No.1 to date No.6 Vol.6 £50. Tel. Berks 0734 81 4378 after 6pm.

• Z88, original packaging, manual and 2x128K ROM packs, Spellmaster and power supply, Arc link and software £150. Tel. St Albans 0727 841126 eves.

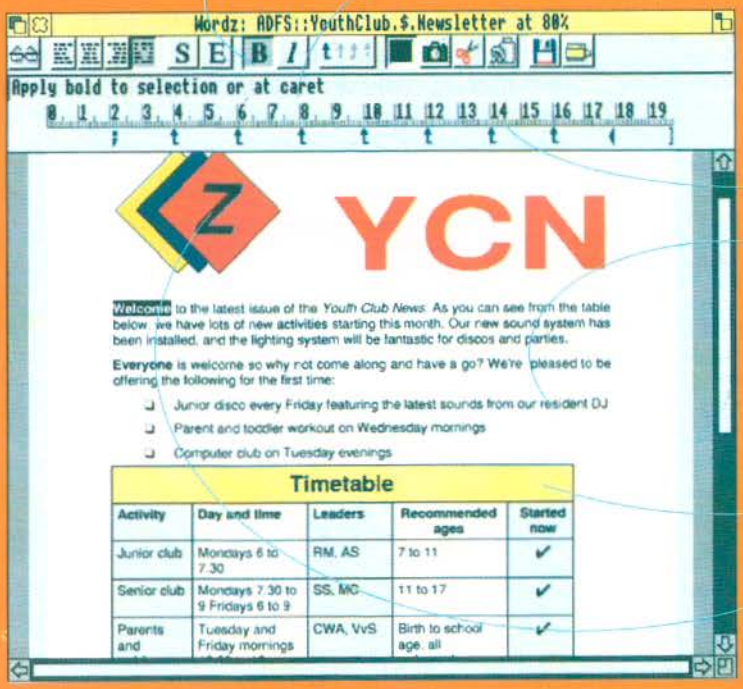
• A5000 40Mb drive 4Mb RAM, RISC OS 3.1, Masterfile II, Interword, Intersheet, Interspell, Enter the Realm, Dennis Wheatley, Pacmania, PC Emulator, Genesis Plus, 1st Word Plus, Acorn Desktop publishing, Impression Junior, DeskEdit, 20Mb ST506 drive. Offers? Tel. Coventry 0203 410047.

• WANTED: Combined 5.25" and 3.5" drive for Master, manuals for Ovation (mine lost) and Viewsheet, copies of Peter Killworth's "How to Write Adventure Games" and "Creative Assembler on the BBC Micro". Tel. Essex 0279 813463 after 6pm.

• French Archimedes user looking for other A440 Archimedes users in the South of France (Toulouse region) to exchange ideas and PD. Tel. France 62 98 15 46, or write to; Rigal Georges, Lottissement Darre La Gleyse, 65300 PINAS, FRANCE.

Advertisers Index

Acorn Computers Ltd	15	*Longman Logotron*	65,68,69
Clares Micro Supplies	8	*Norwich Computer Services*	60
Colton Software	42,72	*Oregan Software Developments*	76
Computer Concepts	73	*RISC Developments'*	74,75
David Pilling	24	*Serious Statistical Software*	37
Intelligent Interfaces	32	*Skyfall*	34


Wordz: ADFS::YouthClub.$.Newsletter at 80%
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YCN
Welcome to the latest issue of the Youth Club News. As you can see from the table below, we have lots of new activities starting this month. Our new sound system has been installed, and the lighting system will be fantastic for discos and parties.
Everyone is welcome so why not come along and have a go? We're pleased to be offering the following for the first time:
Junior disco every Friday featuring the latest sounds from our resident DJ
Parent and toddler workout on Wednesday mornings
Computer club on Tuesday evenings
Timetable
Activity | Day and time | Leaders | Recommended ages | Started now
Junior club | Mondays 6 to 7.30 | RM, AS | 7 to 11 | ✓
Senior club | Mondays 7.30 to 9 Fridays 6 to 9 | SS, MC | 11 to 17 | ✓
Parents and | Tuesday and Friday mornings | CWA, VvS | Birth to school age, all | ✓

At last, the word processor the Archimedes has been waiting for. A program that's so easy to use you'll be able to create great-looking documents the first time you use it. The facilities used most are in the *button bar*, and the *status line* gives you instant feedback. Just click and drag in the *ruler* to set margins and tabs; click on a button to cut and paste - it's that easy.

Wordz has all the features you'd expect from a state-of-the-art word processor. The powerful style editor gives you complete control over all aspects of your text; *font, spacing, margins,* and *colour.* Unparalleled control over *tables* including dragging to resize columns and rows. Speedy check-as-you-type or whole document spell checking. Import *pictures* and text from other programs, including PipeDream.

Wordz is the first of a family of programs which share the same easy user interface and include dynamic data linking. The spreadsheet Resultz will be available in mid-1993.

Wordz costs £99+VAT. *"Is it easy to use? It's falling-off-a-log easy to use."*

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Computer Concepts supply the BJ-200 with a special version of their TurboDrivers - the fastest printer drivers available for the Archimedes. The printer also includes a built-in 80 page sheet feeder. The price for the printer with TurboDrivers is just £299 + vat (+p&p) - a full £100 less than the recommended retail price.

At 360 dpi the BJ-200 offers significantly higher resolution than other 300 dpi inkjet printers and at faster than 1 page per minute for a full page of graphics (or 3 pages per minute for plain text) it is also faster than other printers in its price range. And being an inkjet it is whisper quiet when printing.

RISC OS Turbo DRIVERS

The BJ-200 with TurboDrivers is the perfect answer to those users seeking the best quality prints in the least possible time, without going to the expense of a laser printer. In fact we guarantee this is the fastest high quality printer available for less than a laser printer, or your money back.

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Speed comparison table

Comparison print times using Acorn printer drivers with a Deskjet500 against TurboDrivers with a BJ-200.
All times are in seconds shown on the ARM3 and ARM2 based computers.

To print a 4 page document consisting of a spread of different fonts, text sizes and graphics:

	DeskJet 500	BJ-200	Speed increase factor
Time to get control back - ARM3	313	59	5.3
Last page completed - ARM3	316	200	1.6
Time to get control back - ARM2	832	155	5.4
Last page completed - ARM2	834	232	3.6

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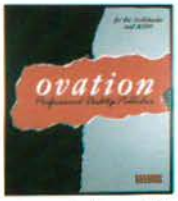

Ovation
DESKTOP PUBLISHING

Ovation is the easy-to-use desktop publisher used on thousands of sites in education, home and business across the country. Now, in response to customer feedback, it has been enhanced with many new features, setting even higher standards of quality and value. Ovation is packed with professional features, yet remains easy-to-learn and instinctive to use. It provides a complete solution for all document generation; from simple single page letters to entire books with diagrams and scanned images.

Try before you buy!
A working demo is available for only £5 (inclusive), which is refundable against a future purchase of Ovation.
This version has no Save or Spellcheck facilities.
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A special hotlink is provided with Ovation, but it is ideal for use with other packages such as Edit, Impression, Pipedream, 1st Word Plus etc.

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TypeStudio is a complete text manipulation package ideal for producing professional quality adverts, posters, banners, logos, letterheads etc. Drawing tools allow lines and curves to be drawn to create almost any shape, along which text can be flowed. Pairs of lines may be linked to create shapes into which text and Draw files may be moulded. A range of special effects are available, including: shadow, slant, 3D and mirror.

Features include:

- Flow text along straight and curved paths
- Mould text and Draw files to shapes
- Wall, floor and graduated shadows
- 3-D, mirror, slant and plinth effects
- Save in internal and Draw file format
- Print using RISC OS printer drivers
- Import Draw files as moulds
- Copy, rotate and magnify
- Grid and zoom facilities

The package includes 7 fonts and a 64-page user guide containing worked examples.

Members' Price: **£44.94**

HP500/550 & Star Drivers
PRINTER DRIVERS

The Printer DJ printer driver produces near laser quality output from the highly acclaimed Hewlett Packard DeskJet 500C and 550C colour printers. Both release 2 and release 3 drivers are supplied for each printer, each supporting 75 x 75, 150 x 150 and 300 x 300 print resolutions in monochrome, grey scale and full colour modes. PrinterLC is the approved printer driver for Star colour dot-matrix printers. It is suitable for both 9 and 24-pin printers including: LC24-200, LC-200, XB24-10 and LC-10. PrinterLC is a release 2 driver, supporting print resolutions from 60 x 72 dpi to 360 x 360 dpi depending on the printer model. Also suitable for many Epson and NEC colour printers.

Members' Price: **£14.98**

RISC developments

RISC Developments Ltd.
117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 40303 Fax. (0727) 860263

All Software is available from good dealers or direct from RISC Developments. Prices include VAT but please add carriage of £3.00 for Ovation and £2 for other software. Please write or phone for details of educational prices and site licences.

RISC Developments Software

Masterfile 3

DATABASE MANAGER

Masterfile version 3 is the latest development in the best selling family of database programs for Acorn systems. It is fast, simple to use and provides powerful data management facilities suitable for home, education and business use. Included amongst its many features is a very comprehensive indexing system allowing data to be accessed in any order. In addition, subsets may be created allowing access to just those records that match the search criteria. Both indices and subsets are updated automatically when records are added, modified or deleted. The report generator allows databases to be printed in card or spreadsheet form, and provides full label printing facilities. To trade-in an earlier version of Masterfile, please return your original disc to the address below, and deduct £5 inc VAT from the price. Only one trade-in allowed per order.

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COMMUNICATIONS

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PlayBack allows recording in real-time of all mouse and keyboard operations as they are carried out. This new package will produce intriguing and eyecatching displays that will be of interest to home, education and business users as well as for training. It is an ideal tool for creating demonstrations or testing programs which run in the desktop. During desktop operation, all mouse operations and key presses may be recorded and saved to file. On playback everything will happen in exactly the same way, with the pointer following all the recorded movements, and text appearing on the screen as if typed from the keyboard. A synchronised text commentary maybe added. and recordings may be converted to ASCII format for editing. A play-only version is supplied which may be freely distributed with recordings.

Members' Price: **£18.98**

RISC developments

RISC Developments Ltd.

117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel. (0727) 40303 Fax. (0727) 860263

All Software is available from good dealers or direct from RISC Developments. Prices include VAT but please add carriage of £3.00 for Hearsay and £2 for other software. Please write or phone for details of educational prices and site licences.

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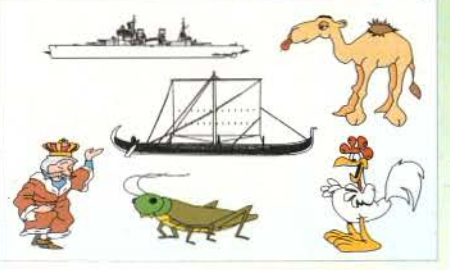
CLIPS 5: 100 clips, Holidays, Shopping, Food, Houses and Kitchen.
CLIPS 6: 180 clips, Animals, Fish, Birds, Decoration.
CLIPS 7: 210 clips, Males & Females, Fills, Books and misc.



Access
VISA

PRICES: A Single pack costs £6, but if you buy more than one, they all cost just £5 each.

DETAILS: This advert features DTP Packs, each pack consists of 3 to 4 discs. The software on them is a mix of both PD and copyright material, it will work on any Acorn RiscOs machine.

CATALOGUE: Skyfalls full catalogue and demo disc of Public Domain software is available for just £1.

Skyfall

PO Box 2220, Birmingham, B43 5RZ. 021 358 7078.